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EDITORIAL.

This number begins a new volume, the eighth, of the *Pedagogical Seminary*.

In the first article, Mr. Sears reports the results of a laborious and painstaking test of the rhythmic sense of school children from six to eighteen, showing its relations to standing in school, musical culture, and to age. The curves of the last show a marked and interesting change at puberty. This is always the case with nearly every test of whatever character, whether mental or physical, where age is taken into account. In view of this fact, are we not now justified on insisting that every investigation whatever, concerning childhood must take account of age differences, wherever they exist, or be open to criticism for failing to do so? If the age line should show no modification here, this fact may demand special explanation.

Superintendent Johnson's study of children's teeth gives an account of the present state of the question, and adds important personal contributions.

It is doubtful if any one would differ from the opinion of the Editor of the *Seminary*, who regards Dr. Balliet, of Springfield, Massachusetts, as the American city superintendent who best combines a good command of psychological and pedagogical principles with the executive ability to put them in successful practice. In recent years, all his public utterances have been increasingly valuable as new contributions to the solution of

educational problems. He has lately returned from a year of study and observation in Europe, where previous visits had taught him where to find what he sought, and here presents briefly the chief lessons he learned abroad.

Professor Swift has previously published articles which show his rare competence to grapple with the complex yet fascinating problem of juvenile crime, and here makes a valuable contribution to the embryology of crime.

The Editor lately read before his weekly Seminary, now rounding the tenth year of its existence, some reminiscences and frank statements of problems in university pedagogy, most of which were written two years ago without special thought of publication, and which with some misgivings are here printed, literally "by request." More may follow.

Notes on some eighty recent publications are appended.

STUDIES IN RHYTHM.

By CHARLES H. SEARS, Fellow in Psychology, Clark University.

I.

PERCEPTION OF RHYTHM BY CHILDREN.

This paper comprises two studies, one by the topical questionnaire method, the other an experimental investigation. By means of the questionnaire it was possible to obtain certain facts of interest pertaining to the rhythms of childhood that could not be gained in any other way. The syllabus (No. VIII in the Clark University Series for 1899-1900) called for as exact details as possible concerning the earliest perceptions of rhythm, the child's earliest interests in nursery rhymes and jingles, the favorite rhythms among children, the time of increased interest in rhythmic exercises, children especially deficient in a sense of rhythm, and the use of rhythmic repetitions or rhymes in the teaching of things difficult to retain in memory. In response to this circular about 600 returns were received, more than 100 of which are personal replies from mothers, kindergarten teachers, and others.¹ These have been collated. The data furnished in reply to the questionnaire are in many respects not altogether satisfactory, yet they contain so much material that is qualitatively suggestive that the writer feels justified in presenting an account of the results in connection with a discussion of some of their particular features in relation to their general and special bearings.

FIRST PERCEPTIONS OF RHYTHM.

In this section of the syllabus the question read as follows :

I. How early in life do children begin to be interested in music

¹The writer takes this opportunity to express his obligation to all who so kindly collected and sent replies. Mention should be made of Prof. Will S. Monroe, of the Westfield (Mass.) Normal School; Miss Lillie A. Williams, of the Trenton (N. J.) Normal School; Principal Geo. C. Purington, of the Farmington (Me.) Normal School; Prof. Oscar Chrisman, of the Emporia (Kan.) Normal School; Dr. Henry H. Goddard, of the Westchester (Pa.) Normal School; Prof. E. A. Kirkpatrick, of the Fitchburg (Mass.) Normal School; Miss Mara L. Ferguson, of the Peru (Neb.) Normal School. He is also grateful to the many personal friends, kindergarten teachers, music teachers, parents, and others who wrote personal letters in response to the questionnaire.

with a marked rhythm, trying to dance or keep time with it with movements of body, arms, or voice? Please give any cases that have come under your notice, stating the age of the child and whether a boy or girl.

Some of the replies referred to more than one aspect of rhythm in the same child, while others gave information regarding more than one child. The returns furnished 925 different observations. Of these 395 were upon boys and 530 were upon girls. No account was taken of any observation made upon a child more than 60 months old.

Table I shows the number that manifested their sense of rhythm in each of the various ways suggested by the question. Table II gives in months the youngest age mentioned in the returns in which the perception of rhythm was manifested, and Table III gives the average age of all the children noted in connection with the different movements respectively. In Table II the figures in parentheses which accompany those representing the various ages denote the number of observations reported. In all cases the ages are given in months.

TABLE I.

MOVEMENTS OF	Boys.	Girls.	Total.
Body	88	90	178
Arms and Hands...	76	112	188
Legs and Feet	41	58	99
Dancing	138	192	330
Voice.....	52	78	130

TABLE II.

MOVEMENTS OF	Boys.	Girls.
Body	$\frac{3}{4}$ (1)	1 (2)
Arms and Hands...	6 (6)	3 (4)
Legs and Feet	3 (2)	6 (3)
Dancing	9 (6)	9 (2)
Voice.....	8 (2)	9 (5)

TABLE III.

MOVEMENTS OF	Boys.	Girls.
Body	16.9	15.5
Arms and Hands...	18.7	17.1
Legs and Feet	17.7	17.9
Dancing	23.8	29.2
Voice.....	25.8	24.2

In many cases the returns did not carefully discriminate between body, arm, and leg movements, *i. e.*, sometimes arm and leg movements were very likely classed as body movements. It is probable that the distinctively body movements precede those

of arms or legs. Classing these movements all as body movements and then computing the average age of the results it is found to be for the boys 17.7, and for the girls 16.8 months. Hence it would seem that the sense of rhythm finds its expression earlier in girls than in boys. This is in exact correspondence with the opinion expressed in several of the returns.

A study of the tables suggests that those rhythmic movements involving only the more fundamental muscles come earlier in the order of development than the more complicated rhythmic movements and those that involve the accessory muscles. This intimates that there may be some connection between the law of muscular development—from fundamental to accessory—and the development of the expression of rhythm. For all we know the rhythmic tendency may bear its part as a factor in muscular development.

It is perhaps needless to remark that the data from which these results have been made are nothing more than chance or accidental observations made by persons in their ordinary daily lives, and without thought of their being of any scientific importance. It is quite probable that if children were carefully observed with the end in view of finding out how early in life they begin to appreciate rhythm the average age would be younger than that represented by the observations upon which we have based our conclusions. Some characteristic replies are noted :

F. At 13 months could say but a word or two, but could hum a strain of music in perfect time and tune.

M., 9 months. He would move his hand with the clock pendulum, but this was a result of singing "tick tock" to him with the purpose of learning how soon he would respond by spontaneous movement of his own hand.

M., 6 months. Would dance up and down in time to music played on a harmonica, his mother holding him upon his feet. The same child always keeps accurate time to music by clapping, etc. Is now 3 yrs. old.

M., 24 months. Would not walk, though the physicians said he *could*. Hearing a march played on the piano and seeing his little brother and sister march, pulled himself up and amazed us all by starting off in perfect time.

M., 6 months. When he hears music in march time he seems to be very much delighted, and makes his hands go up and down, keeping time with the music. When other music is played he pays little attention.

M., 36 months. Is enchanted by light opera choruses of marked time, but impatient of solos. On returning from opera will dance to an original rhythm, keeping time with waving hands. No musical recollection of the particular tune, but the *time* and many of the dance movements are recalled vividly and reproduced, kicks and all.

F., 9 months. She kept time with her foot when the piano was played in the room below, and when the performer stumbled or lost the rhythm her foot was held suspended impatiently in the air until the time was again regular. She sang several simple little airs or snatches

of airs at 21 months, and at 23 months sang almost thirty simple little songs through very correctly.

M., 24 months. When Herbert's sister played the piano he would mark the time with his feet, planting them wide apart and swaying his body at the same time. He often kept time to the slow ticking of a tall, old-fashioned clock, singing "de-de" in the clock's monotonous tone, and also to the sewing machine. He also tried to keep time to the egg-beater and to adjust the tunes of several pieces he knew to the time of the egg-beater, finding that none of these would do he sang the scale up and down, keeping perfect time and tone as long as the egg-beating lasted.

As would naturally be expected the returns show that the appreciation of rhythm differs greatly with different children. One states, "A girl of three years dances in perfect time to certain music, and laughs with great glee and seems to appreciate the rhythm perfectly, while her brother of five years forms a perfect contrast to her, for he apparently takes notice of neither music nor rhythm." Another writes, "My boy of seven months has shown no special interest in rhythmic sounds over others. My girl of thirty-four months has never appeared to have any particular preference for music whose rhythm is strongly marked although she makes the rhythmic sounds and often wants us to sing to her." And another makes the positive claim that she had scarcely any appreciation of time until she began to go to school, and that then its development was exceedingly slow. These statements form a striking contrast to the returns already cited. Here is an open field for the study of one phase of individuality.

While rhythmic response in relation to music is the most frequently mentioned, yet appreciation for other forms of rhythmic movement came out prominently in the papers. A child of ten months with rhythmic movements of the body keeps time to the swinging of a pendulum belonging to an old-fashioned clock. One watches for hours the rhythmic flow of water as it babbles over the stones in a brook. Another takes delight in observing the moving branch of a tree as it is swayed by the wind, and still another enjoys the up and down movement of a piston rod belonging to some machinery in his father's shop. A reminiscent paper says, "As a child of three and a half years, I was especially responsive to a small water wheel which my older brothers had constructed and placed in a brook near the house. I never tired of watching it. A little later, when about four years old, I became deeply interested in a circular saw which sawed shingles in a mill within sight of my home." Is it too much to suppose that the child's great interest in action is due to its pleasurable rhythmic effects? Pleasure in regularly recurring actions as well as in sounds is instinctive, being the outcome of our whole nervous organization. Acts of listening are successive, hence they can be better adapted to sounds that

follow one another at regular intervals and the movements called forth by sounds can be executed with ease only when they follow in a regular sequence. Thus the child in his liking for well-marked rhythms accompanies them with corresponding movements of head, arms, etc. A boy striking the railing in mere wantonness does so in a regular succession of blows. This is in accordance with the disposition of his muscular frame, and he enjoys it. The child who pounds one object with another does so not merely because he likes the noise, but because he takes pleasure in the rhythm of the actions involved and in the rhythmic sequence of the sounds.

That a rhythm may take a child's fancy it must possess two characteristic qualities. The reports make these prominent. 1. It must be simple, with well-marked time divisions, in order that it may be easily recognized. There is a great preference for duple time over triple time. March music is frequently mentioned as attracting the child when all other music fails. This may be explained on the ground that rhythm whose time is not well marked or whose structure is too highly complex confuses the motor responses and so fails to awaken pleasurable interests. 2. Children in early life have a fondness for those rhythms which are termed "lively" or "fast." This is especially true of the rhythms in music. A girl of seven weeks cried convulsively when a "doleful tune" was sung, but became quiet when the tune was changed to a "lively one." It is reported that this experiment was tried many different times without varying results. A girl of about sixteen months always manifested great displeasure whenever she heard *Old Hundred* or *Nearer My God to Thee*, but was always delighted with *Marching Through Georgia*. A boy of eighteen months is described as crying every time he hears a slow or sad piece played, but as laughing and clapping his hands and trying to dance whenever he hears a lively piece played. Sprightliness of rhythm seems to fit the child's physical and mental constitution. These characteristic qualities which lead to the appreciation of rhythm in early childhood form a close parallelism to those found in the music of the early primitive races. As children grow, as the crude liking for rhythmic sequence changes into a fuller æsthetic development there is awakened an increasing fondness for the "sad" or "slow" in music. The returns contain such statements as these: "When older I preferred poems that had an element of sadness." "As I grew older a love for pathetic music or poetry predominated." "I never liked minor music till fifteen or sixteen." "Later I began to like slower music and poetry with a suggestion of sadness." Miss Fanny B. Gates in her study of the musical interests of

children¹ found that in 2,000 children, covering the ages from seven and under to sixteen and over the choice of songs on account of their time was about even between the "lively" and the "slow."

These studies suggest that rhythm is fundamental, and they furnish support to the assertion of J. Donovan² that, "The infant is capable of attending to rhythmic stimuli long before it is capable of any other act of attention."

Henry M. Davis³ makes the statement, "Children have been known to manifest distinct pleasure on hearing music as early as the tenth day." Here is an effect doubtless due to rhythm, and one that is in its nature physiological. Prof. E. F. Bartholomew, author of *The Relation of Psychology to Music*, in a personal letter writes as follows: "I have observed marks of musical appreciation, or perhaps I would better say *rhythmical* appreciation at the age of about two weeks. The marks referred to consisted in a rhythmical movement of the eyes and face of the infant corresponding to the playing of music with a prominent accent, the expression of the face indicating pleasure and not pain." No studies have been made for the purpose of determining just how early in life the infant is capable of responding to rhythmic stimuli. However, in making such observations caution is needed for the child's movements are in themselves rhythmic, and instances may easily arise where they correspond with rhythmic noises without the latter's having anything to do in the causation of the former.

These first responses to rhythmic stimuli come forth out of those vague instinctive regions whose qualities and attributes possess those characteristics that belong to both sides of the child's dual nature. In a word, they are reflexes that are more or less conscious. The sensations connected with the first reactions on the part of the child to rhythmic stimuli, while being closely related with external and internal organic processes, are of a primitive conscious order, and in a more or less obscure way there is involved in these primitive instinctive reactions voluntary and emotional elements.

EARLY INTERESTS IN NURSERY RHYMES.

II. How early do children begin to be interested in nursery rhymes and jingles? Have you known of cases where poetry was liked before the words of it could be understood? In repeating poetry do children get the correct rhythm when they fail to get all the words? Do non-sense syllables take the place of the words omitted?

The replies to the first question in this rubric contained 826

¹ Journal of Pedagogy, October, 1898, Vol. XI, p. 269.

² Westminster Review, March, 1900, p. 300.

³ Music, Vol. XII, 1897, p. 28.

observations. 348 of them were made upon boys, and 478 upon girls. The youngest of these was 2 months old. 2 boys and 2 girls of this age were reported as having shown at least some liking for nursery rhymes. 12 boys and 14 girls were reported as being 60 months old before they developed any such interest. The average age of the boys is 28.2 months, and the girls 27.3 months. Some few observations had reference to children older than 5 years, but these were not regarded. The figures being based upon accidental observations are to be regarded only as of general significance. However, a comparison of these results with those of the previous topic makes our general impressions doubly sure that children become interested in nursery rhymes and jingles some little time after they manifest pleasure in rhythmic sounds and movements.

The rhythm of nursery rhymes is usually not so pronounced as it is in some forms of music, and the child must have developed some power of comprehension to be able to understand at least in some small measure the thought they intend to convey. Interest in nursery rhymes and jingles is a step in advance of the earliest appreciation of rhythm. It is the first sign of the awakening of the literary consciousness. The child now forms word pictures, and appreciates certain agreeable combinations of sounds as in the favorite "Hickory dickory dock," but still the predominantly attractive element in all nursery rhymes is their jingling rhythm. This, with its simple structure, being made up of short feet well marked off, fills the child's soul with delight.

The answers to the last three questions of the rubric are well nigh universally in the affirmative. It appears to be a general principle that in order for children to like poetry it must contain at least some familiar words which shall call up mental pictures of some of the things described. The imagery need not be complete, indeed it may be very incomplete. This accords with the observation of Miss Moore¹ for the child she studied "did not care for songs containing no familiar words." She further observed that during the child's "pre-eminently imitative period what he said expressed no reflections. Unintelligent imitation was rare, though it sometimes occurred, as in the reproduction of rhymes not fully understood; but here the rhythm was doubtless a point of interest."

The replies re-enforce the belief that in early life the rhythmic qualities of verse are a most important feature of attraction, and when in repeating poetry they fail to get all the words they do get the correct rhythm, using nonsense syllables to fill

¹ Mental Development of a Child, Psychological Review, Monograph Supplement, Oct., 1896, pp. 65 and 126.

the measures made vacant by the omission of words, and they often do the same thing in reading in case of words they are unable to pronounce.

The following have been selected as representative replies:

1. Delia enjoyed rhymes at one year old, and liked poetry before she could understand the words. Henry has followed his sister's traits, but usually at a somewhat later age.

2. In my kindergarten children often get the rhythm of songs and do not get all the words. One child puts in *la la la*, others repeat some preceding words or phrase that fills the space.

3. My boy liked nursery rhymes as early as eighteen months old. At 21 months he would insist on having Mother Goose read to him for half an hour at a time.

4. A boy a year and a half old preferred hearing nursery rhymes to playing. He learned a poem about a pig, of 20 verses, 4 lines each. He kept the rhythm from beginning to end, but sometimes changed the order of the words.

5. I remember, as a child, reading Milton's *Paradise Lost*, or rather one page of it, over and over again, wholly for the music, as the words conveyed absolutely no meaning. I must have been about ten.

6. Helen knew nearly all the Mother Goose rhymes by heart by the time she was 1 year and 9 months old, and when she wished to say anything she would first say a line of "Mother Goose," then whatever she wanted to say, making rhyme and rhythm with the line from the nursery rhyme.

7. In trying to quiet a boy of 3 months a jingle was repeated. It failed to attract his attention; in fact he seemed deaf to all, though several jingles were tried. A month later a jingle was repeated when he was crying, and immediately he became quiet and seemed fascinated by it.

8. A boy and a girl were interested in nursery rhymes before they were 2 years old, and the boy would repeat poetry, or as he called it, "would read to us from his books" when he knew only a small vocabulary of words; nonsense syllables filled out the rhythm exactly. He would begin with a line of words and would then complete the metrical form so that his first line had the same number of syllables as the third, and the second and fourth lines were alike, he also added the rhyme.

9. I have known the rhythm in a Mother Goose rhyme to quiet a child of 2 months, and by constant repetition by 5 months she could keep time with the body and hands.

Simple poems are enjoyed by most kindergarten children of 3 years, when I feel sure they do not understand the meaning of the words.

A little boy of 4 years tried to repeat a poem of three stanzas, but succeeded only in supplying a word or two while humming the rhythm.

The reports show that by five years of age the child's interest in nursery rhymes and jingles is becoming supplanted by other interests, or perhaps it is better to say that it is becoming perceptibly modified into higher forms of poetical appreciation. A mother says, "My little girl who had been especially fond of Mother Goose cared little for nursery rhymes after her fourth or fifth year. She preferred the more simple forms of poetry." A teacher in her reply says, "Three little boys in whom I have been particularly interested began to like nursery rhymes and

jingles when a year and a half old. The oldest—five and a half—seems to have lost his interest, while the second—three and a half—gets very enthusiastic over Mother Goose. For the last three months I have had fifty children of ages from 6 to 9 in my care part of the day. I have given them myths in place of jingles, and find they choose the jingles no more."

This interest, at least in many cases, seems never to become wholly lost. The jingling rhythmic qualities of the verses of early childhood may be almost swamped in the many and various interests of adult active life, yet every now and then they come to the surface, pressing themselves in upon the consciousness and bringing with them the thoughts and associations of early by-gone days. What child having revelled in them in babyhood ceases wholly to enjoy them in manhood?

A mother says, "In repeating Mother Goose to my little boy of 3 years my childish pleasure in them seems to have returned." A teacher says, "The nursery rhymes that I learned when a child of 3 and 4 years have never left my memory, but as I grew older I grew to love such practical poems as those of Will Carleton." A normal school student of twenty writes, "I still like the nursery rhymes of my childhood, but Enoch Arden, Evangeline, etc., are now more interesting to me." Another normal school student says, "The Mother Goose rhymes were of course my favorite verses. My feeling for them has never changed, and I never hear them now that my memory does not flash back to early childhood."

FAVORITE RHYTHMS AMONG CHILDREN.

In connection with this topic the syllabus contained the following section:

III. Have you noticed any favorite rhythms among children, either in music or poetry, or in drumming with the fingers, or in rhythmical shouts (like college yells)? Do they prefer music to waltz time or march time? Does this differ with age?

The returns are deficient in giving accounts of definite rhythms that have attracted children. Quite a number mention children who have had a fondness for drumming with the fingers, and some few mention children who have taken delight in certain rhythmical shouts, but in general those who have replied have contented themselves in giving those nursery rhymes, songs, or selections of poetry that have come under their observation as attractive to children.

A few observers report that children like poetry or music in which every other word or beat is strongly accented. A girl of 5 years is noted as "tapping on everything within her reach, one long tap followed by three short ones." A boy of 2 years has for his "favorite rhythm in drumming one long and one

short tap." A girl of 5 is fond of tapping with her fingers "one hard and one soft stroke." A boy of 6 "taps one long, one short, and one long beat." A girl of 4 drums with her fingers "two light taps and one heavy one." A boy of 3 in beating the drum uses two long and three short taps. A boy of 6 prefers in drumming with his fingers "three loud and three faint strokes." And a person of 20 affirms that "ever since babyhood" she has "always liked to tap first three short quick taps and then two long ones." A lady writes, "I remember from the time I was 4 years of age the habit I had of drumming on every surface with which I came in contact. The rhythm being always the same, as follows: long, short, short, long, short, short, long, short, short, short, short, long, short, short. The long strokes were made with the lower part of the hand, and the short ones with the fingers. I would often rattle latches with the same rhythm."

The following is the list of the nursery rhymes and jingles which were reported as the particular favorites of children. The number of times each is mentioned is also stated.

Old Mother Hubbard, 81; There was an old woman who lived in a shoe, 39; Little Jack Horner, 38; Little Bo-peep, 35; The House that Jack Built, 31; This Little Pig went to Market, 26; Little Boy Blue, 24; Jack and Jill, 23; Old King Cole, 21; Mary's Little Lamb, 19; Hey Diddle Diddle, 18; Hickory, Dickory, Dock, 15; Rock-a-bye, Baby, upon the Tree-top, 14; Sing a Song of Sixpence, 14; Peter, Peter, Pumpkin-eater, 13; Ding Dong Bell, 13; Jack Sprat, 12; Baa, Baa, Black Sheep, 11; Red, white, and blue, all out but you, 9; Mary, Mary, quite contrary, 9; Peep-a-boo—I see you, 8; Ene, Mene, Mine, Mo, 8; Tom, Tom, the Piper's Son, 7; Little Miss Muffet, 6; Wash the Lady's Dishes, 6; On the Green Carpet, 5; Little Drops of Water, 5; Simple Simon, 5; Peter Piper, 5; Humpty Dumpty on the Wall, 5; Twinkle, Twinkle Little Star, 4; Ring around the Roses, 4; Trot, Trot to Boston, 4; Pussy-cat, Pussy-cat, where have you been? 4; Little Sally Waters, 4; Bye O Baby Bunting, 3; Three Little Kittens, 3; The Little Red Hen, 3; Three-and-twenty Black-birds, 3; Ride a Cock Horse to Banbury Cross, 3; Brownie Jingles, 3; A Diller a Dollar, 3; Jack and the Bean Stalk, 2; This is the Way the Farmer Goes, etc., 2; A B C Rhymes, 2; Black-bird Pie, 2; Taffy was a Welshman, 2; Little Fishes in the Brook, 2; Five Little Pigs, 2; and each of the following was mentioned once: There was an old woman of whom I've heard tell; Shoe the Old Horse; Rain, Rain High; One, two, I see you; Fee Fi, Fo, Fum; I had a Little Pony; Puss in Boots; One to begin, Two to show, Three to make ready, Four to go; Cock Robin; Little Dame Crump; A white old Hen with yellow Legs; Inta, Minta, Cuta, Corn; Eggs, Cheese, Butter, Bread; Ride a Jack Horse; Poor Dicky's Dead; One, Two, Three, all out but Thee; My Black Hen; My Father's Horse-shoe; Water Water Wild-flower; One, Two, button your Shoe, Three, Four, Shut the Door; I see the Moon, The Moon sees Me, God bless the Moon, And God bless Me; Here come two jolly, jolly Sailor Boys; Go in and out the Window; Lazy Betsey, will you get up? Go to sleep, my Baby; Left,—left,—Left a good Home and I Left,—left,—etc. (For marching); Little Tommy Tucker; Leg over, leg over, Dog went to Dover; Tom Thumb; Vinegar, Salt, Mustard, Ginger, Cayenne

(for jumping rope); The Three Pigs; The Three Bears; The Pig wouldn't go over the Stile; Old Mother May, may I go out to play? Poor Baby's in the Woods; The Owl, the Eel, and the Soap-fat Man; Eutrie, Mutrie, Cutrie, Corn; Jacky Dory; Baby Bye, there's a Fly; There was a Little Girl; Miss Tucket; To Boston, to Boston; Hear the Pennies Dropping; If all the Sky was Paper; Hang up the Baby's Stocking; We're all in the Dumps for Diamonds are Trumps; Barber, Barber, shave a Pig; Rain, Rain, go away; Three Little Men in a Boat; See a Pin, and pick it up, etc.; One, Two, Three, Four, Five, Six, Seven, All good Children go to Heaven; Pussy-cat Mew jumped over the Coals; The old Woman who swept the Cob-webs from the Sky; I'm going now to run away; Star light, Star bright (said with a wish); The following rhymes for counting buttons, daisy petals, etc.: Rich man, poor man, etc., Red house, white house, etc., Coach, carriage, wheelbarrow, etc., Silk, calico, satin, rags, etc.; One for the cat to die (for swinging); Hush my Babe, Lie Still and Slumber; Just see the Boys and hear the Noise; I have a Little Finger, etc.; Six Little Rabbits went out to run; I Love Little Pussy; I'm going to write to Papa; Little Red-bird in the Tree.

The returns suggest most forcibly that children have favorites among the rhymes and jingles, but they do not indicate that their choice of them as such is dependent upon any peculiarity of rhythm. They demand for all a simple, well-marked rhythm; and then that one rhyme may be better liked than another, there must enter in other factors such as shall captivate the child's fancy. Sometimes the factor is hidden, being an associate of some innate characteristic of the child. The attractive quality may be in the flow of the words as in Hickory Dickory Dock. If the rhymes are read from a book the pictures may have a deciding influence. Then, again, one may be more pleasing than another because of its more frequent repetition or because it has been more attractively presented. One says, "From the age of 5 to 7 my favorite rhythms in music were Jesus Lover of my Soul and Yankee Doodle. I liked the former because my mother used to sing it so much about the house, and the latter was dear to me because my father used to sing or whistle it while he was trotting me on his knee."

All this does not signify that there is not a certain class of the Mother Goose rhymes and jingles better adapted to one stage of the child's awakening interests and development than any other. As regards their content they differ widely and must possess a logical and natural order in which they may advantageously be presented to the child. What this order is the mother-instinct unconscious of following any law usually discovers, and thus the mother is enabled at each stage of the child's development to present those rhymes and jingles that are adapted to his growing intellectual capacity. This is exemplified in the fact that the mother always begins with Pat-a-cake and This Little Pig went to Market, which infants insensibly appreciate even before they can talk, and then a little

later proceeds to amuse the child with those rhymes that are more complex.

In some cases the Mother Goose melodies do not seem to have been, at least to any great extent, a part of the child's early environment. In this particular his early education seems to have been neglected. In such instances the deficiency appears to have been partially atoned for by the songs sung to them by their parents and others, by the rhythmical rounds employed in children's games, by the counting-out rhymes which, as Will S. Monroe, in his study of the play interests of children,¹ has shown, "are apparently universal features of children's plays," and by the rhythmical exercises that come during the first years of school life.

Among young children march time has the preference over waltz time. Of the 212 cases reported 89% preferred march time. In later life waltz time has the preference. This change in musical taste takes place sometimes as early as the eighth year, sometimes it comes as late as the fifteenth or sixteenth year, but on the average the transition period is between eleven and twelve years of age. Four always preferred march time. Some few have always liked waltz time the best. A reminiscent paper reads, "When a child of five I used to despise march time, and a troop of soldiers marching would fill me with terror." This is an unusual experience.

INCREASE OF INTEREST IN RHYTHMIC EXERCISES, MUSIC, MARCHING, DANCING, ETC.

IV. Have you observed any time during the period of childhood or adolescence in which there is a marked increase of interest, in music, marching, dancing, automatic tapping, rocking, swaying, swinging, or any other rhythmic movements?

Describe cases in which a special desire has arisen for jig or clog dancing, for playing the banjo or drum. State sex of child and age in which the phenomena first manifested itself.

The number reporting in regard to an increased interest in music was 356. Of these 267 had reference to girls, and 89 to boys. The ages in which a new feeling is experienced for music range from 8 to 25, there being four of the former, and only one of the latter. The average age for the girls is about 12, and for boys about 13. My results do not differ materially from those given by Dr. Lancaster, who found in his study of the psychology and pedagogy of adolescence² that the period in which there is most likely to be a marked increase of interest in music lies between the ages of 10 and 16.

Concerning marching there were 259 replies—167 girls and

¹ Proceedings National Educational Association, 1899, p. 1088.

² *Pedagogical Seminary*, Vol. V, p. 101.

9½ boys. The results of the returns indicate that from 9 to 10 for the girls, and from 10 to 11 for the boys, is the time on the average in which a special interest arises in marching. Several teachers affirm that the best time to have successful marching in school is between the ages of 9 and 14. That the age of special interest in marching should be younger than that for love of music is perhaps due to the simplicity of the rhythm of march music, and to the fact that marching calls for action on the part of the child.

The returns contained 385 observations on dancing. 111 were upon boys, and 274 upon girls. Among all primitive peoples music and dancing almost always go together, and young children show a strong tendency to dance whenever in the presence of music. The replies made no reference to this instinct, but confined themselves to the interest in dancing as it appears in connection with social life. The replies cover the ages from 10 to 20. The average of all the ages given makes it appear that a special interest in dancing is likely to arise when the child is 13 or 14. Boys manifest this awakening a little later than girls. Many of the returns gave the indefinite answer, "The interest arose in the adolescent period."

A few testified that they had never experienced any marked increase of interest in music, marching or dancing, and some affirmed that their interest had been a gradual growth.

The following selections are given as typical returns:

F., 22. I positively refused to take music lessons until 13, when I grew to love it with my whole heart.

F., 25. Grew very fond of music at 14. Was filled with rapture about once or twice a year. Such times generally came upon me after hearing an especially enjoyable "musical." After I was 18 the interest decreased.

F., 23. My interest in music was especially aroused at the age of 12. I had a great desire to become a musician. I dreamed of devoting my life to music. The spell lasted only a few years. I never had any especial musical ability.

M., 25. At about 14 I experienced a very marked increase of interest in music. I earned money, bought a violin, and took lessons. I imagined myself as being one of the world's greatest violinists.

M., 26. I experienced at about the age of 14 a strong desire for playing in a band, or beating the drum. Have not entirely gotten over it. I ascribe it to the influence of reading a book called *British Battles on Land and Sea*.

F., 18. At 8, when I went to school, we were all so delighted with marching that going home we used to form one long line and march, shouting,

Left, right, left, right,
Point the toes so merrily;
Left, right, left, right,
March we all so cheerily.

F., 23. When 9 I began to love to march. I think it was because we

began then to have marching in our school. I have retained my love for marching until now.

M., 24. As a child of 9 or 10 I delighted in marching. At about 16 I took great interest in dancing, and I believe my interest in marching increased also. I still greatly enjoy marching, dancing, fancy steps and all.

F., 19. At 13 I was seized with a strong desire to learn to dance, and have had the desire ever since.

F., 21. I have never had much interest in dancing, having been taught that it was wrong.

M., 23. I became infatuated with dancing when about 16. I used all my spare minutes in practicing the different dancing steps and changes. Waltzing was my favorite dance. I would waltz by myself just before going to bed and before I was fully dressed in the morning. Would do this sometimes a half hour at a time. The dictum of my landlady spoiled my fun.

F., 21. I always liked to dance. At 15 my fondness for it deepened. For one or two years it was my chief amusement. It was the thing that I preferred before all other things to talk about. Did not care much for young people who were not interested in dancing.

The returns do not indicate that rhythm as a special factor is in any way closely connected with the increase of interest either in music, marching, or dancing. Rhythm is a pleasure-giving factor constantly present. Other elements come in to arouse this interest. It occurs at the time in life when new thoughts and new sentiments are being awakened. The love of nature and of the beautiful in art, the appreciation of melody and harmony are rapidly unfolding, and conspire to increase the love for music and dancing. Often some accident in the environment may be its prime cause. One says, "I was always fond of music, but my greatest interest in it came at 25, when I was elected to succeed an accomplished organist in church." Other reasons given are: a new piano, joined the band, neighbor's new organ, best friend sang in the choir, teaching of music in school, asked to play in Sunday School, exercises for decoration day, gymnastic exercises, patriotic and political rallies, seeing a militia company march and drill, marching exercises in school, classmates attended dancing school, playmates danced, seeing dancing, a dancing club among my friends, etc.

Automatic Tapping, Rocking, Swaying, Swinging, etc. The returns furnish no data for the conclusion that there is any special time in which there is a marked increase of interest in these rhythmic movements. They have their genesis in early life, usually arising between the ages of 4 and 10. Occasionally some of them come later. They frequently persist through life. Sometimes, owing to the inhibitory influences of self-consciousness, the inclination to participate in them gradually fades out of itself, and there are instances where they are overcome because of admonition on the part of the child's parents or friends. Many of them, such as swaying of the body, trotting

the foot and the like are automatic, and while entered into unconsciously are performed with a slight conscious impression of pleasure. Some report never having had such tendencies.¹

The following, culled from the reactions of different individuals, will serve to represent the replies given:

F., 20. When Mary was 11 or 12 if she had to stand still when reciting she almost invariably forgot what she had to say.

F., 19. Henry, till 9, had a habit of swaying his body from one foot to the other. At the same time his eyes were fixed and his hands opened and closed in time to each sway of the body.

F., 16. Ever since I was 5 years old I have had a habit of classifying every sound or action into some rhythm. When I walk I say one, *two*, one, *two*. When I hear a clock tick I say, tick, *tock*, tick, *tock*.

M., 43. From my earliest recollection I have had a tendency to sway the body, and when sitting to trot the foot and to sway the legs from side to side. I have persisted in doing these things in spite of being admonished thousands of times by my friends.

M., 45. When a child I enjoyed rocking in a chair and swinging my feet whenever they hung over the edge of anything I was sitting on. I have always had a tendency to drum with the fingers and tap with the foot. When a child I did it for pleasure, but in maturity I find it connected usually with nervous restlessness, especially when waiting for anything which I constantly expect and which I want, *e. g.*, my dinner or a lecture.

F., 47. My mother tells me that when I was just old enough to sit alone she left me in my cradle, and when she returned I was sitting up with my hands on the side of the cradle and rocking vigorously. I am still, at the age of 47, rocking. I have liked to swing as long as I can remember. If I am not in a rocking chair I am very likely to sway my body, especially when studying. I often drum with my fingers and tap my feet when in deep thought.

Jig and Clog Dancing. The information furnished by the returns is meager. Only 52 cases are reported. These show that an interest in clog dancing may arise as early as 7, or as late as 18 years of age, but that the most usual period for such a special desire to arise is between 10 and 15 years of age. Of the cases reported three are girls, one of 10 years, one of 12 years, and the third found special pleasure in participating in the exercise from the age of 15 to 18. Before 10 or 12, clog dancing when entered into appears to be largely a matter of spontaneous acquisition, but in the early years of adolescence it becomes more of a business, effort is made to learn the different steps, and there is much time and practice given in order to become proficient in the art.

F., 23. At the age of 10 or 12, I, a girl, danced jigs a great deal.

F., 18. Joe, at 9, would practice clog dancing in a room by himself.

F., 19. At 9 my brother attended dancing school, but never cared to learn anything but jigs, etc., but danced them beautifully.

M., 40. When Frank was between 14 and 15 and was wanted by any

¹Somewhat related to this topic is the valuable article of Lindley and Partridge, *Pedagogical Seminary*, Vol. V, pp. 41-60.

member of the family they knew that he could be found in the barn practicing clog dancing.

F., 21. I knew a number of young men about 15 or 16 years old who used to meet on moonlight nights and dance clog dances on a wooden bridge until the floor of that bridge was one mass of splinters.

M., 27. T's passion at 10 was jig and clog dancing, and a rolling and swaying walk keeping time to a rhythmical tune which he whistled. Now, at 20, he is very proficient in clog dancing.

F., 19. Last summer a show came to town with a clog dancer as a specialist. A little French boy of 11 years saw him, and ever since has been clogging till I believe he can beat the specialist.

M., 17. At the age of 12½ years I suddenly had a d sire for clog dancing, and for hours would practice some step that I had seen. The desire to learn the dance has increased as I grow older.

F., 22. When Will was 7 he began to jig-dance, and he did it not only once in awhile, but all the time. Often when he would be standing and talking all at once he would begin to whistle and jig, or if he was playing with other boys he would do the same thing, stop and dance, and then go on with his play for awhile, then stop and dance again.

Playing the Banjo or Drum. 45 cases—25 boys, 20 girls—were reported in which a special desire was experienced for playing the banjo. This interest was awakened in every instance in the period of early adolescence between the ages of 13 and 17. According to the replies it is during this same period that interest in playing other musical instruments such as the guitar, harp, mandolin, etc., takes its rise. Desire for playing the piano and organ in the majority of cases probably comes earlier.

The drum seems to be the first musical instrument to which the child gives his attention. It is a purely rhythmical instrument, and the one first invented by primitive man. If these results are typical, here is an illustration of the theory that the development of the race is in many ways repeated in that of the child. Boys frequently have a desire to drum by the time they are 3 or 4 years old, and it is a prominent musical interest during their early childhood. The returns indicate that the drum psychosis is peculiar to boys. Out of 291 observations only three girls are noted. The period from 10 to 14 is the time when boys organize their drum corps.

F., 23. At 15 I was seized with a great desire to play the banjo.

M., 21. From 10 to 15 I took a decided interest in drumming and dancing jigs.

M., 23. From 11 to 15 I was first interested in clog dancing, then the banjo, and then the violin.

M., 27. At 15 I had a great desire to play the banjo, but in about two years I lost my interest in it.

F., 18. A boy of 7 that I know marches and plays the drum in good time, and never tires of it.

M., 24. From 4 to 6 James would amuse himself for hours marching and beating a drum.

F., 21. Walter, from 6 to 10, had a great passion for drumming. He made a drum of a nail keg, and was always at it.

F., 19. My brother when 8 years old teased for a drum till he got it. He soon learned to play in good time.

F., 20. Dave took a sudden interest in drumming. He would get his little rocking chair, and when sitting on the floor would drum on the seat of the chair. After his parents bought him a drum he drummed always.

CHILDREN DEFICIENT IN RHYTHM SENSE.

V. Have you ever noticed any children to be especially deficient in a sense of rhythm, unable, for example, to keep step in marching or to keep time in calisthenics, or to learn to dance? How young may a child learn to dance in perfect time?

The aim of the question was to discover as far as possible how generally the rhythm sense in children is defective, and to get suggestions as to the possibilities of its improvement. Almost without exception those who sent returns replied to this question, citing one or more cases in which a child if not deficient in rhythmic feeling was at least deficient in ability to express the feeling in certain prescribed ways. The tabulated replies show that because of a defective sense of rhythm 268 children found difficulty in marching, 134 in dancing, 81 in calisthenics, 79 in music, 63 in keeping step in walking, 44 in poetic rhythm, and 17 in the execution of drill exercises. 12 were said to be able to learn dance steps, but could not fit them to music. It is very probable that a child who was reported as unable to enter into any one of these exercises was also unable to perform one or more of the others. A personal communication from a director of physical training in one of our largest cities makes this assertion: "There are frequent cases in our schools where a sense of rhythmic time is lacking in both pupils and teachers." Similar observations have been made by army officers. Theodor Billroth¹ gives statements from the officers of six army divisions who assert that there are certain recruits who never learn rhythmic marching. One says that 20-30 per cent. of those who enter his divisions are unable to keep step in marching, another finds 2 per cent., another 1-4 per cent., and two others 33 per cent., while the sixth declares that men have been in his division 10 or 12 years without learning to march in correct time.

The following are selected as representative replies:

1. In my kindergarten some children will pass two or three years seemingly without this sense, and then suddenly develop it.

2. A young man could not learn to keep step at West Point, and for two years was in the "awkward squad," the usual period being three months.

3. I have had children in my kindergarten who did not keep time, but usually were children who were slow in doing anything, and who preferred to look on rather than join.

¹ Wer ist Musikalisch? Deutsche Rundschau, Oct., 1894, p. 79 ff.

4. A girl in high school could not write verses nor sing in time. She did not care for dancing, and her reading of poetry was most monotonous from the fact that the rhythm did not appeal to her.

5. Some children seem to have no sense of rhythm. A pair of five year old twin boys are unlike in this respect, as one is quick to respond to rhythm and change of time; the other enjoys trying to take part in rhythmic exercises, but fails quite materially.

6. I knew one girl who always attended school where marching and singing was engaged in several times each day, and yet at the age of 20 she told me she always marched by watching the step of those in front of her, that the music gave her no idea as to when to move her feet.

7. I have known two girls, one about 14, one about 5, who always had trouble to keep in time in calisthenics. The younger one could not keep step in marching. Several young men of my acquaintance could not learn to waltz. One of these simply couldn't waltz unless he counted one, two, three all the time.

8. I have had children in my kindergarten for two years, and given them special help in our rhythmic exercises, and yet have failed to see any apparent increase in ability to keep time even to the simplest march. This has been the case in many instances with boys, but I have never known a girl to fail after repeated efforts.

The results of the returns render it emphatic that in the expression of rhythm there are wide individual variations. They do not justify the conclusion that some children are void of a feeling for rhythm. Since rhythm is so largely physiological in its nature its sense would seem to be a universal possession of man. Different persons differ in their feeling for rhythm just as they have certain peculiarities of physiological structure and tendencies. To be without rhythmic qualities is to be abnormal, it is to have a nervous organism incapable of performing its proper functions. Every one can express rhythm in some form, but not every one can express it in all forms. The reason why a child fails to express himself in a certain way is because he has never developed that mode of expression, and not because he is wanting in rhythmic disposition or tendency. Prof. Hayden says, "In answer to your question I recently asked in a first year room for the children who failed in keeping step when the class was marching. Two were pointed out whom I found could sing in good rhythm. I think also that any normal child can be made to express rhythm in any of the ordinary forms called for in the child's school life. He is sure to drive a nail in rhythm if you give him a hammer and tell him to hit once hard and once soft."

The returns indicate that the power to perceive and reproduce rhythmic forms of expression may be improved by cultivation. Several instances are given where such has been the case. A teacher of dancing¹ makes the following statement: "I have had repeated instances among my pupils, at the be-

¹Brookes: Modern Dancing, p. 16.

ginning of their practice, who seemed totally devoid of an ear for music, yet in the end have been capable of adapting the step to the music with critical exactness." The following is a portion of a communication that is of interest along this line:

"I experimented along Froebelian lines with my first child (a girl). When she was three months old I rocked her in my arms in rhythmic time, always accompanied by sounds also in rhythm, called her name, swung the colored balls in rhythmic time, trotted her about in rhythmic steps. The child was quietly attentive and seemed beyond a doubt to appreciate it. This same plan was carried out in the succeeding months of her infancy—making it a point to sing simple, good melodies to her when she was wide awake and when presenting new objects to her.

"At one year of age she could dance her doll in perfect time to a polka tune; a few weeks later (she did not then walk) she threw the doll aside very forcibly in the middle of the polka and herself polka'd about like a frantic dervish. This was ever after her habit. It seemed she would get so full of the spirit of the rhythm that every nerve in her little body responded, and she would thump and hitch about on the floor like mad. (She hitched, never crawled on hands and knees.) At 14 months she kept splendid drum-beat time. At 22 months the Mother Goose jingles fascinated her, and although speaking German she learned to repeat them very quickly. At 3½ years she rhymed constantly in melody, and kept up perfect meter in the melody she invented. At the present, 3 years and 10 month, she rhymes in words.

"Singing to her constantly the first three years of her life, that is presenting every new thing to her in a song, has made a decided difference in her as compared with other children of her age. She invents songs, and plays and sings simultaneously, and what is more she comprehended the thought very clearly at once. At 2 years she would transpose the idea in the song and then laugh very heartily over it.

"The child 20 months younger than the first one carried parts of melodies perfectly before she was a year old, and is so susceptible to sounds that her ear-mindedness when it comes to harsh and penetrating sounds is a real trial; she gets completely unnerved when hearing them.

"Both parents unmusical."

That rhythmic ability develops with age is indicated by the results of my experimental investigation, published in connection with this study.

The ages given in answer to the question "How young may a child learn to dance in perfect time?" range from 3 to 8, the average of all the ages being 4½ years. One says, "Juanita

is 5 years old, and the youngest member of a dancing school. Her teacher is very proud of her because she is the youngest and dances the best of any in the class." Another says, "Mrs. W. has several dancing classes, but her best pupils are those in the children's class of 3 and 4 years of age. These keep perfect time, and are the most graceful." A teacher of dancing¹ states that he has made good dancers of children aged from 3½ to 4 years.

USE OF RHYTHMICAL REPETITIONS IN TEACHING.

In former days the use of rhythmical repetitions for teaching facts difficult to remember was a prominent feature in the methods of school work. Recognizing that the method is no longer a "fad," and thinking it would be of interest if not of practical value to find out to what extent such repetitions are now used, and to get the opinions of teachers and others as to the value of extending the method, the following section was placed in the syllabus:

VI. Have you ever made use of rhythmical repetitions or of rhymes in the teaching of things difficult to retain in memory? Do you think the method could be extended with advantage?

439 replies were received. 348 of these affirm that they have either used the method in their teaching or that it was used as a means in their own instruction. 91 claim to have had no experience in the use of the method, and it is quite probable that those who did not reply to the question did not because it called for knowledge outside of their experience. The following is a list of the rhythmical repetitions contained in the returns with the number of times each was mentioned:

Number of days in the months, 291; Multiplication tables, 74; Names of the Presidents, 46; Sovereigns of England, 32; History of Columbus, 19; Arithmetic tables not including the multiplication tables, 17; Capitals of the different States, 16; Historical dates, 12; Books of the Bible, 10; Counties of State, 10; Rules in Grammar, 9; Teaching of number lessons, 8; Learning the alphabet, 7; Rules in orthography, 5; Bones of body, 5; States in the Union, 4; Rules in Latin grammar, 4; Lines and spaces of musical staff, 4; Location of cities, 4; Bones of face, 3; Constellations, 3; Ten Commandments, 2; Names of Apostles, 2; Lists of prepositions and conjunctions, 2; Spelling of the word Mississippi, 2; and each of the following was mentioned once only—Productions of the different States, Occupations in the different States, Spelling of the word Tennessee, Sovereigns of France, Days of the week, Townships of county, Roman numerals, Lakes of Scotland, Minor Prophets, Wives of Henry the Eighth, The gunpowder plot.

Several cases were reported of such rhymes being made by individuals. One says, "From 10 to 15 years of age I made

¹ Brookes: Modern Dancing, p. 13.

rhymes in order to learn History." Another says, "When Leonora finds a recitation hard to learn her mother sets the words to music, and she learns them without any difficulty."

A few typical replies are:

1. I was taught all the capitals of the United States by singing them, but when called upon to give the capital of a single State I had to go all over the whole rhyme.

2. If the rhymes are lost the whole key is gone. It detracts from independence of thought. I prefer the association method.

3. When I learned the alphabet in rhyme I remember that for a long time I could not think of *A* as standing for anything but *Adam*. It was the same with each of the letters.

4. I tried it one year and found that it affected the common conversation of the pupils to such an extent that everything they said took on the form of rhyme, even if it lacked rhythm.

5. I was taught all of the multiplication tables by means of rhythmical repetitions, but I have not followed the plan in my teaching. It was suggested in Bible class the other Sunday that we learn the books of the Bible in jingle form—the pastor giving the jingle which he was taught when a very small boy. The Kings and Queens of England I have always remembered because the jingle staid with me. I do think rhythm helps one to retain some things in memory.

6. In number lessons I often use such rhymes as these :

One and one are two,
That's not hard to do.
Five and five are ten (fingers),
We call them little men.

Here are some fishes in the sea,
Father, mother, and children three,
How many fishes do you see ?

I make use of rhythmical repetitions frequently in primary teaching, and believe the method could be extended with advantage.

Of those replying about two-thirds think the method might be employed with good results, but they would limit it in its extent. They nearly all agree that it is more applicable to young children than it is to older pupils. Some few think its use is of questionable value, and the remainder assert positively that it has no practical importance as a means of imparting knowledge. The advantages claimed for it are that it saves time, that it awakens and sustains interest, and that it aids the memory. The latter is made the most emphatic. One says, "Certainly a useful device. It is like a chain, if one link is pulled up the whole comes immediately before the mind." Some think it a kind of mnemonics that is of great value for memorizing unconnected facts. The disadvantages stated as arising from the use of the method may be summed up as follows: The child's interest in the rhythm leads him to give too little attention to the facts presented. It has a tendency to cultivate a sing-song style in reading. It would take no more energy to learn and remember the facts independently. To re-

call the facts one has to begin at the first and go over the whole rhythm. This makes the method a waste of time. If one fail to recall the rhythm he fails to recall the fact. It destroys the tendency to associate events with other practical events.

A consideration of the rhythmical repetitions given in the returns leads one to conclude that, if these results represent the general habits in regard to learning by the rhythmical method, then its use may be particularly helpful in learning those things that are not worth while learning.

CONCLUDING CONSIDERATIONS.

In the primitive history of mankind labor, play, and art were inseparable. The bond of union was rhythm. When in the process of evolution these forms of mental-bodily activity became differentiated the ordered articulation of movements remained forming a fundamental element of each division. Thus rhythm is still a principle underlying and unifying all forms of human activity. Not only does it appear in the arts of movement—music, poetry, dance—but in the various labor activities, and in the arts of rest—sculpture and painting—which are the embodiments of the results of labor. It governs all natural activity of the animal body as a regulating economical element for the expenditure of vital force. Rhythmic activity permits of the rhythmic automatic formation of movements from which springs satisfaction, freedom of mind, and opportunity for the imagination to act. Irregular forming of activity or unrhythmical movements are in a much greater sense consumers of energy in that every new operation demands a new action of the intellect. In a word, rhythm lightens and facilitates labor, it is a prominent source of æsthetic pleasure, and it is an element of art for which every one has in some measure a perception.

The ancient philosophers were not unmindful of the significance of rhythm in its relations to man. Plato observes that the young find delight in noisy movements, and affirms that man is by nature rhythmical, that the gods gave to man this sensation, and accompanied it with pleasure, and that by means of this pleasure the gods awakened in mankind a passion for graceful, alternating movements, and by means of song and dance processions made strong the bonds of human sympathy. For Aristotle rhythm, like imitation and harmony, was inborn. He makes three classes of rhythm, distinguishing (1) a rhythm of form, (2) a rhythm of tones, and (3) a rhythm of speech. The first may be apprehended in the movements of the dance, the second is expressed in connection with harmony in the song, and the third is what we denominate as meter. Music calls forth the feeling of pleasure. This is due to rhythm in its

connection with harmony. Poetry has had its origin and rise in rhythm in connection with imitation and harmony. Building upon this foundation the Greeks, in the education of their youth, were led to ascribe high importance to the formal structure in music. Because of its beneficial effects upon speech and action they believed in filling the human soul and penetrating the whole life with rhythm and harmony. However, they laid not less stress upon the value of body movements. The dance accompanied by music and song was the most complete expression of rhythm, and a most important means of culture and ethical self-discipline. It was a religious performance. In old Hellas rhythm played a prominent part in the development of poetic literature, and in the social and political life of the people it was no small factor. The Thessalians looked upon the office of leading-dancer as one of high political dignity, and the Lacedemonians attributed their success in war largely to the discipline which their young men had acquired in the orchestral practices. Among this cultured people of antiquity the sense of rhythm was so strongly developed that in the theater mistakes in the rhythm of either body movements or speech were censured. To these ancients rhythm was a principal permeating the whole universe. They believed it originated simultaneously with the old Orphean Eros who ordered the "primeval chaos" and set in motion the "procession of the stars."

In the education of to-day rhythm holds no important place in the mind's curriculum. Its relation to body movements is not a matter of concern. Unrhythmic movements, awkwardness or ungraceful gestures, while not meritorious do not offend. The rhythm of poetry is given almost no attention, so that most people make most poetry rather prosy. It is in music that we lay stress upon rhythm, and even here it occupies a place subordinate to melody and harmony. In general we fail to recognize that rhythm is the corner stone of all music, of all motion, of all life. While the Greeks may have made rhythm an altogether too important element in the education of their youth, we, on the other hand, have erred in not appreciating the fact that all life, mental and physical, is perfect in proportion to the perfection of its rhythm. The sweetest affection, the loftiest reaches of faith, joy, and peace are dependent upon the rhythmic activities of matter and mind. Rhythm sinking deep into the recesses of the soul brings gracefulness in its train. Brain activity is not made up of currents of force, but rather of rhythm among the brain cells. Lack of appreciation of the part that rhythm plays in the processes of life has prevented child life in the home and in the school from rising to the heights it should have attained. What shall be done in the line of rhythm-

mic instruction is a problem difficult of solution. Two or three principles may help.

1. As the child begins very early in life to appreciate rhythm so should the appropriate means thus early be offered to foster and develop its perception. The training should continue until the adolescent period or longer. When in early life the expression of rhythmic tendencies has been checked by external influences, or where the environment has not been favorable to call them forth and develop them, the returns indicate that the child of 9 or 10 years, when called upon to express himself in any way rhythmically, has been at a disadvantage, and that he has been slow in acquiring the power to keep step in marching, to keep time in calisthenic exercises, etc.

2. The child's nature is such that the only method to pursue in bringing out the rhythm of his being is to give him some form of activity in which to express it. These forms of activity should appeal to the child's interests, he being unconscious of their purpose.

3. The method of development should be an indirect one. No barren rhythmical exercises and no mechanical devices for a special training are necessary. It is not to be taught as an abstract thing *per se*. The development is to come through those forms of activity that call for the expression of the child's sense of rhythm, but that have other objects in view that stand out prominently. These forms of activity are such as physical culture exercises, rhythmic plays and games, singing, marching, dancing, etc. Music in connection with these aids in securing exactitude of rhythm.

From the first three sections it appears that the perception of rhythm develops very early in life, following which there soon comes an interest in rhymes of the Mother Goose type and in the so-called lullaby songs, which interest passes over gradually into that for poems and music whose sentiment and thought are beyond the pale of appreciation until the adolescent period. Throughout this whole stage of development rhythm is prominently the common factor—at first the only means of attraction, at the end a much less absorbing element of interest. The returns enforce the belief that children like poetry whose meaning they only partially comprehend—a fact of pedagogical interest.

If the conclusions reached are well founded there can be little doubt as to the general nature of the application. To neglect to make use of the rhythmic interests in developing the higher poetic sentiments is to limit the child's future appreciation of poetry and music. It is to be pedagogically guilty of not opening up to the child in the right way one of the broadest fields of culture. It is a trite but true saying that a taste

for poetry can hardly be acquired late in life, but should be developed by home and school training. To cultivate in a child the love of poetry is to acquaint him with the highest and noblest form of the best literature of his mother tongue making him a partaker of all the inspiration it carries. Lanier in his Introduction to *The Boys'* Percy says, "I know that he who walks in the way these following ballads point, will be manful in necessary fight, fair in trade, loyal in love, generous to the poor, tender in the household, prudent in living, plain in speech, merry upon occasion, simple in behavior, and honest in all things." Some one has somewhere said that, "Poets are prophets, and Tennyson can teach a girl that 'T is only noble to be good,' and Burns can make a boy understand that

'The honest man, though e'er sae poor,
Is king of men for a' that!'

better and earlier than preachers or reformers."

In developing a taste for poetry the child's early interest in rhythm presents the fundamental element to be utilized in the first years of training. The sonorous rhythm of the stanzas of a poem like Kipling's *Recessional* when read aloud in the presence of young children appeals to them, attracting them to the poem itself. If the rhythmic qualities of the verses please them, almost any thought or sentiment is acceptable. In support of this assertion is the testimony of such replies as the following:

1. A little girl of 5 was very fond of hearing *Hiawatha* read. The same child at 7 and 8 delighted in Scott's *Marmion* and Shakespeare's plays. 2. A girl of 8 liked to hear *Lady of the Lake* read aloud. 3. A girl of 6 listened with great interest to some of Tennyson's poems. 4. "In the kindergarten we sometimes read selections from the best poetry to the older children, those of 5 and 6 years, and are frequently requested by the children to re-read these selections."

These illustrate a point. It is not advocated that they be the material first used in the child's literary teaching. This place should be occupied by literature of the nursery rhyme type. Mother Goose sheds a beneficent influence over early child life. The fear of some matter-of-fact people that the repetition of an obvious impossibility like "The cow jumped over the moon," may teach children to lie is groundless. Children spend their lives in a world of imagination, and if they are not allowed the good old standard giants and fairies they will spontaneously create monsters and pigmies for themselves.

The pedagogical value of nursery rhymes depends upon their psychological constituents. They are helpful in developing both the sense of rhythm and the sense of rhyme. They aid in stimulating the imagination and in feeding the growing in-

terests of early childhood. They are the heritage of centuries and contain a wealth of material suited for infant and child instruction that mothers have not yet dreamed of, and that has never yet come within the scope of the versatile imagination of the kindergartners. What is needed is that they should be systematically arranged, but without any attempt at an impossible cast-iron grading. The classification following the child's growing interests and intelligence would naturally begin with those rhymes and jingles that are the simplest and most concrete, and gradually advance to those that express more complex and abstract ideas. It is permitted only to suggest in the briefest possible outline the groups that an analysis of the rhymes and jingles would naturally fall into that there might be certain classes of them adapted to the different stages of the child's progress:

1. Those which in some way appeal to the child's personal interests by affecting his personality—such as concern parts of his body, etc., and into which movements and gestures enter as prominent features.

2. Those which have reference to animals and their doings. This class has two divisions: (a) those in which animals and children hold some relation to each other, and (b) those in which no such relation exists.

3. Those which refer to or make observations on the flight of time, on the weather, on the sun, moon, and stars, etc. These will occupy the child's interest about the same time as the rhymes and jingles included in class 2, although the interest may be awakened a little later.

4. Those that express social relations, *i. e.*, those that attract the child's awakening attention in relation to other children and people.

5. This class should contain the rhymes and jingles used in the rhythmic plays and games of childhood, counting-out rhymes, riddles, etc.

Such a classification, being based upon the psychological development of the child, is thoroughly pedagogical, and would be a contribution to the literature for young children that would be gladly received in the home and in the school.

The kind of literature which has been referred to as being good for the child possesses both form and content. On the other hand there is much of the so-called poetry written for early childhood which is objectionable in that it is destitute of content, its whole value lying in the jingling rhythmic qualities of its verses. This is pedagogically bad. It is always possible without destroying the child's interest to embody in these rhythmic forms some little thought which, though not comprehended in the present, will be in some more advanced stage

of the child's development. So all through the child's early life he may, because of his appreciation of rhythm, enjoy poetry, the full realization of whose thought and sentiment he does not experience until more advanced in years. The principle to be derived from this fact is obvious. Take advantage of the rhythmic interest to store the child's mind with those higher forms of poetry that shall furnish material of thought and sentiment for use and enjoyment in his later life. This can be done without sacrificing the child of the present for the child of the future, and when so done the child's present enjoyment becomes the prophecy of his future. This often repeated assertion is all true, but of vastly more importance than this storing of the mind for future use is that which the child assimilates at the time of presentation. It is thus that he builds up intellectual fibre which enables him to assimilate still more. In this way in a far greater degree than in the other does the child's present doing foretell his future.

What has been said of poetry holds in regard to music. Rhythm, the fundamental element of music, lies originally at the foundation of the child's interest in music. Melody and harmony are secondary or artificial elements, and are of later appreciation. Make the rhythm such as shall attract the child, and the opportunity is given for employing those musically artistic qualities that educate and refine the musical perceptions of children. Music for children should possess two qualities, it should be child-like and it should be musical. It should reach out in various directions into the later life of the child, being in some sense a preparation for each successive stage in the child's development. Music may be made subservient in strengthening the religion, the poetry, and the imagination of the child. It offers an opportunity for lifting the child to planes of elevated thought and emotion. By it his higher spiritual entity may seek and find communion with that of his companions. W. S. B. Mathews says,¹ "Music comes into the child-life in two main aspects: as an *incidental*, a convenient method of securing pleasant attention and simultaneous utterance, as in marching songs, and the like; and as *educational*, as in devotional songs, the songs of home, and so on. Now the general impression would be that it need not matter whether the music of the first class possess artistic quality or not, since its prime object is merely that of securing unity in the action. But here we come upon a deeper principle. There are musical forms (artistic songs) which, while securing all the external ends of the shallow marching songs, at the same time have in them seeds of eternal life. So while

¹ Music Review, Vol. II, p. 179.

the child sings them his feelings are kindred, and certain expectancies form themselves in him which later find their full realization in poetical music, like the sonatas and symphonies of the great masters. . . . It is not a matter of indifference whether even the more elementary forms of children's music are common in quality. 'There is an education in merely wearing silken garments. Nor is it merely external.' In the child-songs of the educational class he asserts that quality is of pre-eminent importance.

Not of insignificant importance is the use of rhythmic exercises for the promotion of health. The activity of the general life proceeds irregularly and by fits and starts, while that of rhythmic exercises, such as the dance, proceeds regularly and methodically. In the former there is continuously renewed reflection and effort of the will in order to subdue the resistance which the organism opposes to the work in hand, in the latter there is only exertion at the beginning—the muscles being once put in motion, each perfected motion calls out a new one without any further renewed activity of the will. The rhythmic exercise releases the nervous strength accumulated in the psychical centers without the wear and tear attendant upon the routine of the daily life, while the automatic movements awaken within the individual pleasurable sensations. Herein lies its special value as a means of healthful recreation—a source of pleasure that improves the physical and animates the moral powers, that develops bone and muscle and strength of cerebral fibre, and that brings the muscles of the body into beneficial action. Rhythm brings that exhilaration of mind which makes exercise doubly beneficial, and prevents in physical growth the development of angularity and counteracts the many vicious attitudes and habits which children too often contract. By it the evils of over-mental education may be largely avoided by breaking up the irksomeness of study. In school, when children seem weary of their work, music in connection with rhythmical physical exercises is of untold value. Under such influences the unused and flaccid muscles of the body are stimulated, the listless form springs anew into life and activity, the dull eye again sparkles with animation, and the mind turns back with alacrity to its task. The effect of rhythmic exercises on the mind is well expressed in the words of Dr. Andrew Combe,¹ "In acquiring readiness and forming habits, we merely turn to account that organic law which associates increased aptitude, animation and vigor with regular exercise. It is not the soul or abstract principle of the mind which is thus

¹ *Physiology Applied to the Improvement of Mental and Physical Education* (cited by Brookes, *Modern Dancing*, p. 10).

changed, but simply the organic medium through which it is destined to act. In physical education we are quite alive to the advantages of repetition and practice. The same principle applies to the moral and intellectual powers, because these operate by means of material organs."

When we consider that the mind works rhythmically, that the body consists of nearly four hundred organs of motion whose action is rhythmic, that rhythm has been a prominent factor in the development of the race, and that probably the development of the race is in many ways repeated in that of the child, we are led to believe that the subject of instruction in rhythm demands more attention in both the home and the school than is now given it. The question in just what the instruction shall consist and in what manner it shall be given is a problem as difficult to solve as are a multitude of other pedagogical questions. We can only refer to the suggestions and principles already stated, and repeat that the child's early environment should frequently furnish strongly marked rhythmic music and exercises to which he may have opportunity to respond, and then in connection with the expression of rhythm there will come a development of the feeling of rhythm. But to obtain the desired results the method must take into consideration that no work of art is in itself purely rhythmic. While rhythm is an indispensable factor, yet it is only one of the factors in the creations of music, poetry, or the dance; frequently, and even in the more primitive formations, it has its foundation in the union of two or all three of these. In all cases the rhythmic forms are suited to the peculiar kind of material which forms the subject matter of the rhythm in such a manner that they are intelligible and valuable only in connection with this material. Working from this standpoint, and with the understanding that there is danger in over development just as there is in arrested development, is it not possible to build upon rhythm as a fundamental principle of human nature to the end that the whole character of the individual may be exalted, and that there may be a new delight in conforming to common standards of obedience and hope? May the child not thus be led "to strive for the most life possible and for the greatest possible enjoyment of life with the least possible sacrifice in life's force and life's pleasure?"

II.

EXPERIMENTS IN RHYTHMIC TAPPING.

The purpose of this study was the determination of the ability of children at various ages to perceive and reproduce rhythms tapped off in their presence.

The tests were made upon pupils in the public schools of Worcester, Massachusetts.¹ Three of these schools were elementary, two containing many children of foreign parentage, and the other very few. Tests were also made upon pupils in the classical and evening high schools. The whole number of pupils examined was 1,297. Of these 646 were boys, and 651 were girls. The range of age was from 5 to 19 years.

TABLE I.

Showing the number of each age tested.

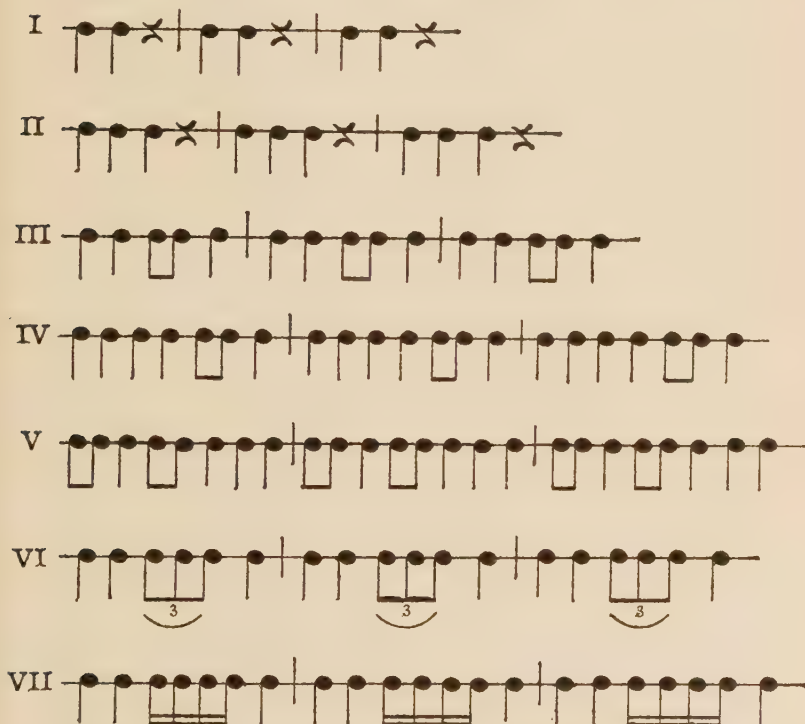
AGE.	BOYS.	GIRLS.	AGE.	BOYS.	GIRLS.
5-6	26	27	12-13	59	60
6-7	34	34	13-14	68	52
7-8	41	36	14-15	56	51
8-9	39	45	15-16	50	60
9-10	43	57	16-17	49	47
10-11	61	50	17-18	37	45
11-12	44	52	18-19	39	35

After some consideration of more elaborate methods it was finally decided to make the tests in the simplest way possible. Rhythms of varying difficulty were tapped off with a pencil upon a table, and the child was required to reproduce them in the same way, his success in each case being judged by the operator and recorded with incidental observations. This method has been followed throughout the investigation. It will be noticed that the method adopted is chiefly motor, *i. e.*, it is a test of the child's ability to express rhythms of certain standard forms rather than a test of his keenness in discerning rhythms or of his feeling for it. Nevertheless the active and passive aspects are not absolutely independent. Ability to execute involves ability to perceive, and great keenness of perception would hardly be present without some skill in execution. It is perhaps fair to assume that the two run in general parallel, with the ability to execute always lower than the ability to perceive.

¹ The writer desires to express his indebtedness to Superintendent Carroll and the school authorities of Worcester for the privilege of making these tests in the schools, and also to the principals and teachers of the schools where tests were made for their interested co-operation and numerous courtesies.

As a preliminary to the specifically rhythmic tests each subject was requested to tap a little on the table in any way he saw fit. This will be referred to as the *ad libitum* tapping.

The rhythmic tests themselves were made with a series of seven rhythmic patterns differing from one another in difficulty. The following are the expressions in musical notation of the patterns used:



In making the tests each rhythm was repeated by an assistant¹ three times, *i. e.*, three measures were given. Previous to and during the investigation my assistant practiced the rhythms daily, and attention was given to keeping the rhythms as uniform as possible in rate, intensity, and accentuation, a matter by no means unimportant.²

In order to determine objectively the exact nature of the pattern rhythms executed by the assistant a careful record of

¹ My wife acted as assistant in the experiments, and she also aided me in the work of tabulating the results.

² Wundt: *Outlines of Psychology*, p. 150.

them was made in the laboratory at the close of the work in the schools. Here the rhythms were tapped out on a tambour, the pulses of which were recorded on a kymograph in connection with a time line in hundredths of a second.¹ The following is a statement of the intervals between taps expressed in these units:

Rhythm I. 31-58-31.5-56-31.5.

Rhythm II. 28-29-56-28.5-29.5-55-29-29.

Rhythm III. 53-52-26-28-53.5-51-51.5-25-28.5-51-51-51.5-25.5-31.

Rhythm IV. 50-50-48.5-48-23-27-49-49-48-49-46.5-23.5-26-47-47-48-49.5-50-22-26.

Rhythm V. 24-26-49-23-25-50-50-51.5-23.5-26-48.5-21.5-25-50.5-49.5-49-21-26-49.5-23-25.5-47.5-47.5.

Rhythm VI. 56.5-56.5-17-16-24.5-54-57.5-53.5-16.5-16-22-54.5-53-53-16.5-16-20.

Rhythm VII. 58-56.5-14.5-14.5-13.5-16.5-57-58.5-56-14.5-14-12.5-16.5-55.5-56.5-57.5-14.5-14.5-14-16.5.

These results, it will be observed, show no greater variations than would naturally be expected, and such as probably had no influence on the work of the pupils tested.

The task of each subject was the tapping of ten measures of each kind. In case of failure at the first trial with any rhythm a second and a third trial were given, the pattern being repeated by the assistant before each. If the subject still failed, further trials were postponed till after tests with all the other patterns. After going through the whole list, however, there was a return to those rhythms which the pupil had not been able to execute, and the assistant now not only tapped, but also counted the rhythm. Two of these counting trials were given in each case if necessary. Thus each subject tested might receive as many as five chances to succeed in tapping the rhythm correctly. The counting trials were left until the last in order to prevent suggesting to the subject that method of assisting himself. In no case was the subject permitted to tap synchronously with the assistant. Each subject was tested separately, and care was taken that each should feel at ease and have a comfortable position. The smaller children stood, the larger ones sat, at the table. Aside from this they were left free to do their best. There was rarely a case in which the work was not taken pleasantly and even eagerly. Every precaution was taken that no subject should know what was wanted until he was ready for the test.² The time necessary

¹ As a matter of fact the rating of the fork is 99 per second instead of 100, but the difference is here of no consequence.

² How far the nature of the tests was divulged, in a way to lead to

for making the tests varied from five to eight minutes. In making the records the observer carefully noted the following points: 1. The number of the trial in which the subject succeeded in tapping each rhythm correctly. 2. Whether the subject retarded or hurried the time. 3. Whether the subject counted in those trials in which it was not suggested by the assistant. 4. Whether the subject had taken any music lessons aside from those occurring in the regular school work, and if he had done so, how many. 5. Whether the subject struck continuously upon the same spot on the table or distributed the taps at different points so as to mark the rhythm spatially as well as temporally. 6. Any peculiarity displayed by the subject in his execution of the tests.

AD LIBITUM TAPPING.

It is unnecessary at this point to go into details with reference to the physical influences that affect the rate of such tapping movements. The studies of this subject already made would lead to the expectation that the subjects would show individual differences arising from various causes, including physical and mental excitement and fatigue, also that the extent of the movement, if not excessive, would have little influence on its rate, and, finally, that within narrow limits the girls might perhaps be slower than the boys.¹

This *ad libitum* tapping was the first test of the series. On entering the room the child was told to take the pencil and tap on the table in whatever way he pleased—to tap in his ordinary way. As he tapped the operator noted whether the tapping was regular or irregular, whether its rate was medium, fast, or slow, and whether it was uniform or rhythmic. The standard of comparison was the operator's normal rate, which is between three and four taps per second. The following table gives the percentage of those who tapped at the different rates, and regularly or irregularly:

A study of this table reveals that which we were led to conjecture, *i. e.*, that the proportion of girls having a slow rate is greater than that of the boys. It will be observed that in both

previous practice on the part of those tested after the first occasion, the writer has no absolute knowledge, but regards the number thus influenced as insignificant.

¹ These statements are based on the following: W. Griffiths: Rhythm of Muscular Responses, *Journal of Physiology*, 1888, p. 39. Horsley and Schaefer: Experiments on the Character of Muscular Contractions, *ibid.*, 1886, p. 96. F. B. Dressler: Some Influences which Affect the Rapidity of Muscular Movements, *American Journal of Psychology*, Vol. IV, p. 514. Cattell and Fullerton: On the Perception of Small Differences, 1890, p. 114. Camerer: Versuche über den zeitlichen Verlauf der Willensbewegung, 1866, pp. 41 and 45. Von Kries:

TABLE II.

Showing percentage of subjects tapping at different rates.

Rate.	REGULAR.			IRREGULAR.		
	Medium.	Slow.	Fast.	Medium.	Slow.	Fast.
Boys,	55.7	17	12.9	7.5	2.2	4.7
Girls,	45.6	26.1	10.7	9.5	4.6	3.5

the regular and the irregular tapping the percentage of slow tappers is greater, while the percentage of fast tappers is smaller, for the girls than for the boys. The girls also show a somewhat greater percentage of irregularity: 17.6 per cent. against 14.4 per cent.

Every precaution was taken to prevent suggesting the idea of rhythm, yet 47 or 7.3 per cent. of the boys, and 55 or 8.4 per cent. of the girls beat rhythmically in this *ad libitum* trial. Had it been intimated, the probabilities are that a much larger number would have responded in this way. Of the total number who beat in regular rhythms 32 boys and 34 girls, or 62.1 per cent. of the boys, and 58.1 per cent. of the girls beat the pattern numbered III above. Of these more than seven-tenths of the boys were between 8 and 13, and nearly four-fifths of the girls were between 7 and 12 years of age.

TABLE III.

Showing the percentage of those who in their ad libitum tapping beat rhythmically and non-rhythmically.

BOYS.				GIRLS.			
Uniform tapping.	Regular rhythmic.	Irregular not rhythmic.	Irregular rhythmic.	Uniform tapping.	Regular rhythmic.	Irregular not rhythmic.	Irregular rhythmic.
80.7	5.0	12.1	2.3	77.2	5.2	14.5	3.2

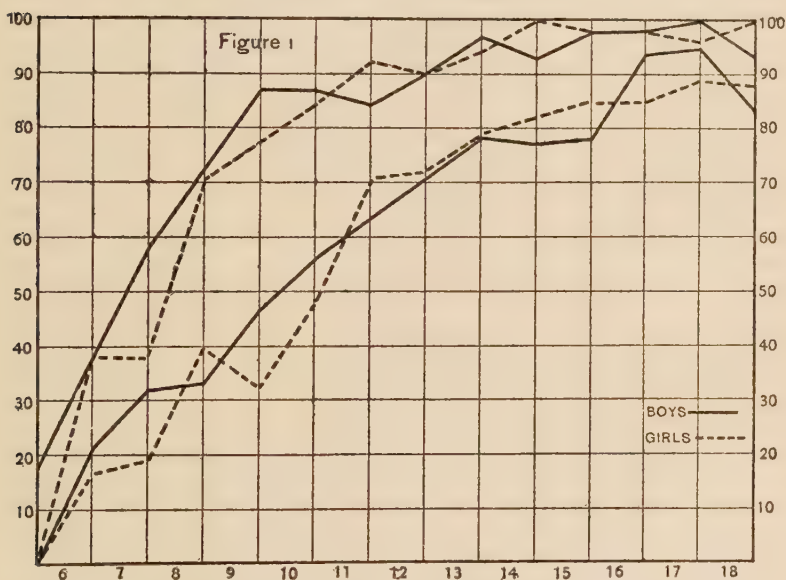
THE RHYTHMIC TESTS.

In working up the results of this part of the investigation the records were divided into three classes. In the first class were put those of all subjects who succeeded in tapping the rhythm on the first trial, *i. e.*, who did it with ease; in the

Zur Kenntniss der willkürlichen Muskel-thätigkeit, *Du Bois-Reymond, Archiv für Physiologie*, 1886, Supplement I, pp. 2-7. Wm. L. Bryan: On the Development of Voluntary Motor Ability, *American Journal of Psychology*, Vol. V, pp. 173 and 177.

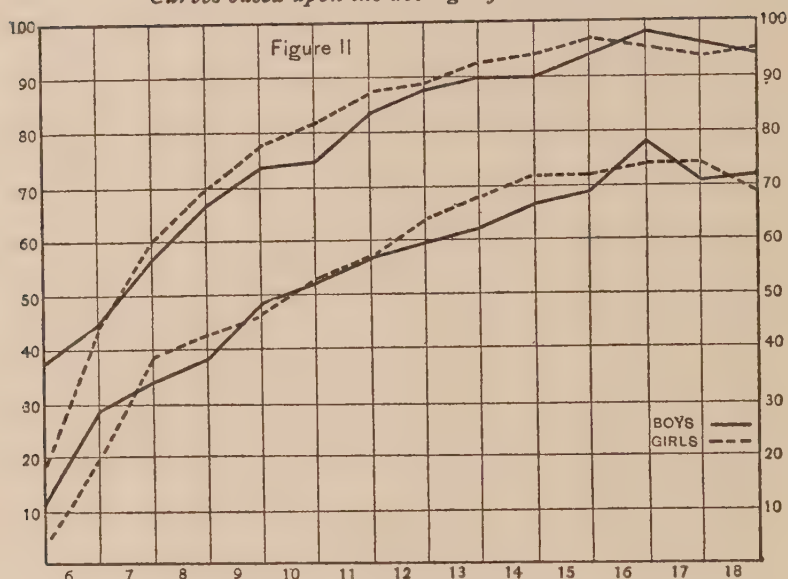
second class those of all subjects who had difficulty, but yet were finally successful; and in the third those of all subjects who, after five trials, had still failed to master the rhythm. The percentage of subjects in each of these classes was calculated for each age, and the results combined in curves like the following, which shows the proportion of those who succeeded easily (or with difficulty, or not at all) in their attempts to tap the sixth of the rhythms indicated above.

Curves representing the results of the tests with the sixth rhythm expressed in percentages.



The solid lines represent the records of the boys; the dotted lines those of the girls. The lower curves represent in per cent. those who executed the rhythm with ease; the upper curves all who succeeded at all. The elevation of the upper curve above the corresponding lower one in any case represents, therefore, the per cent. of those who found difficulty in tapping the rhythm; and the distance from the upper curve to the 100 per cent. line shows the per cent. who failed completely.

The following curves show the average results of all the tests on all the rhythms, no regard being had to the differences in the difficulty of the rhythms:

Curves based upon the average of all the tests.

The percentages from which these average curves were plotted are the averages of the percentages that were used for plotting the curves for the separate rhythms. As in Figure I the solid lines represent the work of the boys, and the dotted lines that of the girls. The two lower curves represent the average percentage of those who executed the whole number of rhythms with ease, while the upper curves indicate the average percentage of those who succeed at all. The elevation of the upper curve above the corresponding lower one in any case represents therefore the average per cent. of those who found difficulty in tapping the whole series; and the distance from the upper curve to the 100 per cent. line shows the average per cent. of those who failed completely.

Similar curves were plotted for each of the rhythmic patterns separately; for the averages of different groupings of the patterns (the three easy ones, I, II, and III; two of moderate difficulty, IV and VI, and the two of greatest difficulty, V and VII); and for all the patterns together, except pattern V, which was found to be the most difficult of all the tests.

A careful study of these curves, both separately and in relation to one another, seems to justify the following statements:

1. Among the youngest children the boys are superior to the girls, but somewhere between the ages of 6 and 7 years the girls become as proficient as the boys. After this time, in

the case of simple rhythms, there is little difference between the sexes, the advantage being slightly in favor of the girls, but as the rhythms are increased in difficulty the inferiority of the boys becomes more apparent.

2. Assuming that the average curves of Figure II represent the development of the rhythmic ability of the average subject, it would appear that the period of the most rapid progress in the case of the boys ends between 9 and 10 years; in girls between 7 and 8 years. After these ages the progress is slower; and after 16 or 17 there seems to be an actual falling off, though this may, of course, be merely accidental.

3. It is probable that the periods of apparent retardation in the case of the boys between 10 and 11, and 14 and 15 are also accidental, especially as no such periods are perceptible in the case of the girls.

AIDS EMPLOYED TO FACILITATE THE TAPPING.

The subjects made use of two chief aids in beating the rhythms: 1. Counting. 2. Distributing the taps at different points on the table.

The following table is an abstract from a more extended one giving the results of the observations upon this matter:

TABLE IV.

Giving in percentage the proportion of subjects making use of different means of assistance in tapping the rhythms.

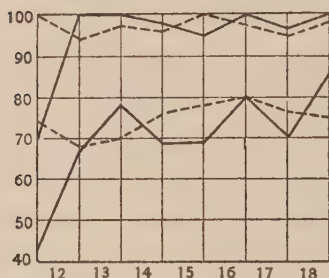
	Counted.	Struck different places.	Did both.	Did neither.
Boys,	19.2	23.7	20.3	36.8
Girls,	32.2	15.8	27.3	24.7

The difference between the boys and girls in this table is striking.

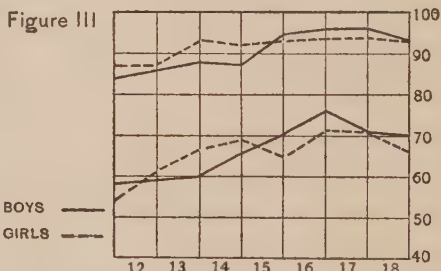
The full table from which this is taken shows a decided though irregular progress from year to year in the use of these helps up to about 16. At all ages a larger per cent. of the girls counted; at all ages, except 6, 15 and 16, a larger per cent. of the boys marked the rhythms spatially;¹ at all ages, except 6, 7, and 17 a larger per cent. of the girls made use of both means of assistance; and at all ages after 7 a larger per cent. of the boys resorted to no aid whatever. These last differences may possibly explain, in part, the general superiority of the girls over the boys.

¹ Was this possibly from a more familiar association with the rhythms of machinery in movement?

Another and more important influence is the special study of music, which is much more general with the girls, about twice as many having taken lessons upon some musical instrument. In the following curves are shown the average results for those who had and who had not taken such lessons. The curves begin at eleven years, no subjects under that age having had musical instruction other than that in singing given in the regular work of the school. The number of individuals at each age who had had lessons is as follows: Between 11 and 12, boys 2, girls 6; 12 and 13, boys 6, girls 17; 13 and 14, boys 7, girls 9; 14 and 15, boys 13, girls 23; 15 and 16, boys 15, girls 32; 16 and 17, boys 21, girls 17; 17 and 18, boys 9, girls 24; 18 and 19, boys 7, girls 13. Total number of boys, 80; girls, 141. The number who had not had lessons can be found in each case by subtracting from the corresponding number in Table I, page 32. A combination of the two curves here shown would give, of course, the portion of the average curve above (Figure II) lying to the right of the 11 year ordinate.



Curves representing the rhythmic ability of those who had taken lessons on some musical instrument.



Curves representing the rhythmic ability of those who had never taken any lessons on any musical instrument.

As before, the solid lines represent the boys; the dotted lines the girls. The curves show clearly enough the superiority of those who had received special musical instruction, and thus throw light upon the superiority of the girls over the boys in the latter part of the general curve. How far this superiority is the effect of musical training, and how far it is a cause in leading to greater interest in music, and so to the taking of special music lessons, is something that cannot be decided by the data in hand. Most likely it operates in both ways.

The curve for those not having had special music lessons is interesting, also, in another connection. There comes out in it more clearly than in the average curve, a time of superiority of the girls from about 12 to 15 years, followed by a time of inferiority extending to the end of the record. This corresponds

very closely with the period of their relative superiority and inferiority physically, as shown by the anthropometric curves for stature and weight, and makes the inference natural that we have in the average rhythm curve a picture of increasing physical development and power of co-ordination. This is what might be expected considering that the tests were addressed to the executive side of the rhythmic faculty rather than to its perceptive side.

SPECIAL CASES.

There were three boys and six girls who failed to execute any of the tests. These were all under 7 years of age. This, for the reason given in the last section, indicates not that they were wholly deficient of the sense of rhythm, but probably no more than that they were unable to express themselves in the required manner. At the other extreme were 22 boys and 33 girls who succeeded in tapping all the rhythms. Of these 4 boys and 17 girls had studied music outside of the public schools, a much larger proportion of the girls being thus able to profit by this form of special training.

SCHOLASTIC AND RHYTHMIC ABILITY.

If Wundt is right in affirming that rhythm is a characteristic of the apperceptive processes,¹ and if rhythm has even a small portion of the psychical importance that some have been ready to assign to it, a comparison of general school standing with ability in the execution of rhythms becomes a question of some interest. It must be admitted at the outset, however, that some children who do exceedingly good work in school seem quite deficient in rhythmic ability, while others who show little aptness for school studies have that ability well developed. For example, one boy of 12 years, who was in the *seventh* grade, *i. e.*, with pupils averaging about 12-13 years, and was marked *excellent*, tapped with ease I and II only, with difficulty III and VI, and failed altogether on IV, V, and VII. Another boy of 12 years who was in the *second* grade, with pupils averaging about 6-7 years, and was marked *poor*, executed all the tests with ease excepting V, which he succeeded later in getting. However, such cases are so rare as to suggest abnormality.

The data for judging of the scholastic ability were given by the teachers. They were asked to arrange the pupils in five grades (excellent, good, fair, poor, and very poor) from the point of view of their school work. In tabulating the results, however, in view of the difficulty of making an accurate judg-

¹ Physiologische Psychologie, II, S. 246.

ment of a pupil's rank in school, it was thought best to reduce the number of classes by calling all on one side of fair "good," and all on the other side "poor." Those who fell in the middle group of "fair" were also omitted as less likely to show the relation in question than the extreme cases. The following table shows the percentage of subjects ranked "good" or "poor" succeeding or failing with each of the standard rhythms. The number of cases in each group was as follows: boys, "good," 251, "poor," 90; girls, "good," 302, "poor," 90.

TABLE V.
Showing Rhythmic Ability in relation to rank in school.

Test.	SUCCEEDED.				FAILED.			
	Boys.		Girls.		Boys.		Girls.	
	Good.	Poor.	Good.	Poor.	Good.	Poor.	Good.	Poor.
I	98.7	96.4	98.9	95.2	1.3	3.6	1.1	4.8
II	97	92.8	97.8	91.6	3	7.2	2.2	8.4
III	96.1	85.5	96.8	85.5	3.9	14.5	3.2	14.5
IV	83.2	63.8	91.4	67.5	16.8	36.2	8.6	32.5
V	69	43.3	72.4	55.4	31	56.7	27.6	44.6
VI	87.5	74.7	88.2	65.1	12.5	25.3	11.8	34.9
VII	55.2	36.1	59.1	39.7	44.8	63.9	40.9	60.3

Study of this table shows that in the simplest tests the difference between the "good" and "poor" is not great, but that this difference increases as the tests become more and more difficult, and justifies the conclusion that good ability in executing a rhythm is more likely to be associated with considerable intellectual alertness than otherwise. If some means had been employed by which the mental aptness of the subjects could have been more accurately determined it is very likely that the results would have been more marked, for many pupils who are classed as "poor" in school work have intellectual aptitudes that are not taken into consideration in the making up of the school records. Whether this relation is more than that between good physical condition and development on the one hand, and both good standing in school and good ability to tap rhythms on the other, remains as yet undetermined.

GENERAL NOTES AND OBSERVATIONS.

In the counting as an aid in tapping there were many variations. Many felt they could not count the more difficult tests, and did not attempt it. There were cases in which they could not count the difficult part of the rhythm, but counted as far as they were able, and then tapped the remaining part as best they could. Some of these succeeded in performing the test.

Cases occurred in which subjects needed to count a few measures only, and then could tap the remainder of the ten with perfect ease. Many of those who did not count and failed to get a rhythm in the first three trials tapped it readily and easily in the first counting trial. Among those who did not count there was a tendency quite strongly marked to vary the time or lose the rhythm altogether before the end of the ten measures.

Two or three testified that they got the rhythms by watching the movements of the assistant's pencil; a few got the time from the swing of the assistant's hand—both, of course, during the giving of the patterns. A small number of subjects was found who kept time not by counting, but by using the syllables *da, da, or la, la*.

Some who marked the rhythms spatially were asked to strike each time the same point on the table. It was the universal testimony that this made the work more difficult. A few under these conditions made a failure of the tapping.

Some knew at once when they failed to get a rhythm correctly; others were less accurate in judging their own results, and, therefore, gave evidence of less capacity on the perceptive side. Several instances occurred in which the subject tapped number III instead of IV, V, VI, or VII, as the case demanded. Frequently VI was tapped in place of VII. Generally, in such cases, it was apparent that the subject was unable to distinguish fully between the rhythms, but there were other subjects whose difficulty seemed clearly to lie in an insufficient voluntary control of the muscles.

In a part of the subjects keeping time by moving the body back and forth, or in some similar way, was a noticeable characteristic. Some moved the head only, others moved the body as well as the head. Only a part of these were conscious of what they did. Some asserted that they felt the rhythm in their muscles. A few affirmed that they knew when they were tapping a rhythm correctly, because of a feeling of pleasantness that attended the movements.

GENERAL SUMMARY OF RESULTS.

In the *ad libitum* tapping the girls tend to tap a little more slowly than the boys. In this test there appeared also a strong tendency, though rhythmical tapping was not suggested by the experimenters, to tap rhythmically.

Nine subjects, 3 boys and 6 girls, all under 7 years, failed to tap any of the rhythms, while fifty-five subjects, 22 boys and 33 girls, executed all without any failure. Twenty-one of these had given special attention to the study of music.

The results of the rhythmic tests show the boys to be more

skillful than the girls up to an age which lies between 6 and 7 years. After this time the girls are more skillful than the boys. This superiority is the most apparent in the curves representing the most difficult rhythms. Increase in ability to express rhythm by tapping movements seems to be rapid up to 9 or 10 years. After this age progress is slower up to 15 or 16 years, after which there is possibly a falling away in skill. The curves do not make it certain that there are any periods of retardation in the development of rhythmic ability.

Two aids were used in tapping the rhythms, namely, counting and marking the rhythms spatially. A much larger proportion of the girls than of the boys took advantage of these means of assistance.

Those having had special training in music were more successful in the execution of the tests than those who lacked such instruction. These two facts explain in part, at least, why the girls were more successful than the boys.

A comparison of rhythmic ability and rank in school work leads to the conclusion that good ability in executing rhythms and intellectual aptness are more frequently associated than otherwise.

The writer wishes to express his gratitude to different members of the Faculty of Clark University; especially to President G. Stanley Hall for generous co-operation at all times, to Dr. William H. Burnham for helpful suggestions and criticisms, and to Dr. E. C. Sanford for his unremitting interest and assistance in the direction of the experimental study.

THE CONDITION OF THE TEETH OF CHILDREN IN PUBLIC SCHOOLS.

By G. E. JOHNSON.

It is well known that with the advancement of civilization there has come an increasing tendency to physical degeneracy in many particulars. This is especially noticeable in regard to the jaws and teeth of the present generation. The teeth of Americans compared to those of contemporary savage tribes and half civilized peoples, are seen at much disadvantage. Indeed there has arisen a deep concern, not alone in this country, but in Europe¹ as well, over the conditions of the teeth of the rising generation. There is no small evidence that, should present conditions continue, a large class of people in this country would become toothless at a comparatively early period in life.

The regular practitioner has not a favorable opportunity, generally, for observing the condition of the teeth of all classes. To him, the actual condition of the teeth of the great mass of people is not known, except by inference, for the greater portion seldom or never consult a dentist. This is especially true in the case of children. A very great majority of even well-to-do parents do not employ a dentist for children with baby teeth, and doubtless most children would never see the inside of a dentist's office were it not for the purpose of having teeth extracted. Few dentists, therefore, are really in touch with a representative body of children. But there has been a deep interest growing among dental practitioners in this country and abroad in regard to the actual condition of the teeth of the rising generation. And the public school has offered the very best medium of all for gaining information on this matter. Here we find children of all ages, classes, and social conditions, and, we might almost say, of all nationalities, and it is not surprising that investigations of the nature of the one conducted at Andover should have been undertaken. It is rather surprising that far more extensive and earlier investigations have not been made.

In 1880 Dr. Samuel Sexton, Aural Surgeon to the New York Eye and Ear Infirmary, made a thorough examination of the teeth of 80 school children. Scarcely any of the children were

¹James Leon Williams: *The Degeneration of the Human Teeth*, New Review, Vol. VII, 1892.

free from dental irritation. "In 30 of the number," he says, "the teeth were in such an unhealthy state, from irregularities and decay, that wax impressions were taken of them; these have since been mounted up in plaster for study. The deplorable neglect of the teeth of these children was a surprise to me, although, from previous observations, I had expected to find them very bad indeed. It was notable that teachers having charge of these pupils never suspected that the teeth ever gave rise to any serious trouble, but it was ascertained by questioning the children themselves that in nearly every instance they had experienced pains in the teeth or ears, sometimes in both. The appearance of many of these children indicated that the general health had not escaped the consequences of imperfectly masticated food; that some of them also suffered from neuralgia about the head and face goes without saying."¹

An investigation of this nature has been made in Dakota and Illinois. 623 children were examined, and 30% of all the teeth were found to be diseased.

Mr. Denison Pedley, in England, conducted an examination of the teeth of 3,800 school children from 3 to 16 years of age. 75% of the children had diseased teeth. About 12% of the teeth needed filling or extraction. While this was considered very bad, it is much better than the condition of American children thus far examined.

Unghavari, a Hungarian, in Scedegin, examined 1,000 children between the ages of 6 and 12, and found that 87.02% had diseased teeth. 22.5% of the baby teeth were defective, 7.75% of the permanent teeth were defective.

In Hamburg 94.4% of 335 orphan children had diseased teeth.

A very extensive investigation of the teeth of school children has been made by the association of dentists in the province of Schleswig-Holstein, Prussia. 19,725 children in 19 cities were examined. 95% of the children from 6 to 15 years of age were afflicted with caries. Only 218 children of the 19,000 and over had ever been treated by a dentist. The mouth hygiene of these children was found to be very unsatisfactory, endangering the sound teeth and proving a source of infection.²

Dr. Karl Röse reports an investigation in the provinces of Baden and Thüringen of the condition of the teeth of school children. In the regions poor in lime, he finds in Baden, 98.7% of the children afflicted, and 35.3% of the teeth diseased. In Thüringen 98% of the children are afflicted, and 34.9% of the

¹ Circular of Information of the Bureau of Education, No. 5, 1881, Washington.

² Zeitschrift für Schulgesundheitspflege, No. 7, 1900.

teeth are diseased. In regions rich in lime, he finds, in Baden, 79%¹ of the children with diseased teeth, and 16.1% of the teeth affected; in Thüringen 82.8% of the children with diseased teeth, and 16.7% of all the the teeth diseased.

In Thüringen only 27 children in 6,303 had fillings. In Freiburg were found only 53 teeth out of 28,343 saved by fillings. In the higher schools was found a better condition of the teeth in respect to care. In the Freiburg Gymnasium one diseased tooth in six was found to be filled.

Dr. C. Henie, school physician in Hamar, Norway, a town of about the size of Andover, examined 660 school children from 7 to 15 years of age, and gives some very interesting tables which will be mentioned later in connection with my own.²

Four hundred and ninety-seven school children in Andover were examined: 257 boys, 240 girls, from four years of age to eighteen. 96.9% of all the children were afflicted with caries. Only 15 children: 9 girls, 6 boys, had perfect teeth, and all but 2 of these were under nine years of age. 31.4% of the teeth were diseased: boys, 32%, girls, 30.8%; 41.7% of the temporary teeth, 26.5% of the permanent teeth.

Table of diseased teeth, by ages.

AGE.	PER CENT. DISEASED.	AGE.	PER CENT. DISEASED.
4 years,	29 per cent.	11 years,	21 per cent.
5 " "	31 " "	12 " "	25 " "
6 " "	35 " "	13 " "	35 " "
7 " "	34 " "	14 " "	36 " "
8 " "	31 " "	15 " "	43 " "
9 " "	41 " "	16-18 " "	52 " "
10 " "	30 " "		

From the above will be noticed the general increase in the percentage of decayed teeth up to 10 years of age, and then the quick drop during the next two years. Children between eight and nine have about one-half of their baby teeth still in the mouth, most of which are in bad condition. At ten years of age most of the baby teeth have given place to the new permanent teeth, and at 11 years of age children enjoy the greatest immunity from diseased teeth of any period in life after the fourth year. Alas! that this more hopeful condition does not continue. At 15 years of age they have lost all they had gained and more.

At about six years of age appears the first permanent molar. The fate of this first born and natural heir of the strength and hardihood of the permanent teeth, as shown in the mouths of these children, is interesting. Evidently at its coming it is

¹ Zeitschrift für Schulgesundheitspflege, No. 2, 1895.

² Zeitschrift für Schulgesundheitspflege, No. 2, 1898.

TABLE

Comparing the teeth of Andover children and those of children of Hamar, Norway.

AGE.	PER CENT. DISEASED. ANDOVER.	PER CENT. DISEASED. HAMAR.
7	34	21.1
8	31	22.4
9	41	20
10	30	16
11	21	10.7
12	25	10.3
13	35	11
14	36	12.6
15	43	13

much needed, for most of the baby molars are now mere shells of bone, but a sad fate awaits it. Contaminated almost at once by its infected neighbors, we find this giant among the teeth diseased to the extent of one in every six, the very first year. Yet I find most eminent authority for the assertion that the sixth-year molar is naturally the strongest and most useful of all the teeth. Children between 7 and 8 have 40.4% of these teeth diseased. At 8, 70%; at 12, 78%; at 15, 90%. Long before it is even suspected by many that these teeth are anything more than baby teeth, an error rudely dispelled when they come to the realization of the facts by having one pulled, very many are past help. Scott says of Zohauk, the Nubian slave, "the lord of speech has been stricken with silence betwixt the ivory walls of his palace." More fitly might the mouth of the American boy of 9 or 10, with his shining new front teeth, be described as a sepulchre, white without, but within full of all uncleanness.

TABLE

Showing progress of decay in the sixth-year molar.

Age	No. Children	No. Molars	No. Diseased	No. Lost	Per cent. Diseased or Lost.	
					Andover.	Hamar.
5-6	36	30	4	0	13.3	
6-7	32	92	14	0	15.2	
7-8	27	105	47	0	40.4	18.5
8-9	34	136	90	2	70.2	40.9
9-10	51	204	143	7	73.5	50.3
10-11	50	200	131	17	74.	52.8
11-12	56	224	132	19	67.4	49.3
12-13	60	240	152	37	78.7	53.3
13-14	51	204	131	36	81.8	55.5
14-15	26	104	81	16	93.2	57.5
15-16	15	60	41	13	90.	60.3
16-18	15	60	43	13	90.	

Dr. Mary E. Gallup, of Boston, for several years gathered statistics of the sixth-year molar in the mouths of native born

Americans. Of 3,000 Americans over 25 years of age, only seven had all four sixth-year molars in the mouth.

Besides the decay of the teeth there were numerous abnormalities, some scarcely less serious than the disease of the teeth, either as regards appearance or health. More than one-fourth of the children examined, *i. e.*, 26%, had one or more of the following: protruding upper or lower teeth, teeth pointing inward or outward, or jaws meeting at either front teeth or back teeth only, thereby interfering greatly with mastication of food. Two children were unable to bite the little finger when inserted between the front teeth. Some had teeth meeting end to end at the front of the mouth so that the molars were unable to touch those of the opposite jaw. 13.1% of these children had too long retained baby teeth, many of which were causing a crowding out of place of the coming second teeth. One day a little girl came to my office with a singular appearing mouth, which, on my looking more closely, disclosed a double set of teeth across the entire front of the upper jaw, the baby set being allowed to remain unmolested in the way of the second set. All the baby teeth are normally displaced by the permanent teeth at about eleven years of age. Yet we found many baby teeth in the mouths of children from twelve to fifteen years of age, and occasionally even to seventeen or eighteen years of age. Cases were not wanting of too early extracted baby teeth, and what is worse, of course, extracted by dentists.

Dr. W. H. Atkinson denounces this extraction of children's teeth as 'murder,' and claims that not 5% of children at 16 years of age, in consequence, have fully and regularly developed jaws; while Dr. Edwin Collins, of The London Dentist, says that extraction of teeth should be scarcely less rare than amputation of limbs. And yet, not many years ago, in our enlightened Commonwealth it was not an unusual thing to see some travelling "dentist" extracting teeth, even of irresponsible children, in the public street by the dozens, "free of charge," and "without pain."

Three-fourths of the children examined in one building had unsightly stains upon the teeth. Of the 165 children examined in this building, 58 had prognathous upper jaw, 8 prognathous lower jaw, 28 had occlusion of molars and bicuspid only, 10 of molars only, 136 had green stains more¹ or less marked, 47 gave evidence of being mouth breathers, 22 suggested the possibility of adenoids, 11 had abnormally high arches, 3 V-shaped arches.

The records written in these child-mouths also told us that, in the case of the great majority, it was only when afflicted with

¹ Dental Cosmos, Vol. IV.

what Burns calls the "hell o' a' diseases," the toothache, that the dentist was ever employed, and then as one whose function it was to tear out these organs of digestion and rid the mouth of them, rather than to save them. The 326 children over nine years old had lost 183 permanent teeth; more than one to every two children. After 14 years of age, there was an average of one permanent tooth lost to each child. One girl of 15 had lost all her first permanent molars and one twelfth-year molar, and the other three had cavities.

It was very evident that many of these children had suffered much with the toothache. 22.5% said they had suffered a great deal during the past year, and one-half of the remainder had suffered more or less.

While the percentage of cavities filled is much better than that found in Germany, yet it is amazingly small. Less than 20% of the cavities in the permanent teeth were filled. Among high school pupils there was a better record, 50.3% of all cavities were filled.

Each mouth bore a testimony of its own in regard to the care taken of the teeth, but each child was also questioned on this point. Only 13% of the children under 6 years of age brushed their teeth or had them brushed; 87% rarely or never brushed their teeth. Of the whole number of children, only one in three made any pretence of regularly caring for the teeth. One might suspect that this low percentage was due to including in the calculation the very young children. But 62.9% of children over six years of age neglected to clean the teeth, and even 23% of the high school pupils examined were guilty of like neglect.

So much for the condition of the teeth of school children in Andover. To recapitulate and make clear the general condition of the teeth, before passing to the next point, let us try to get a sort of composite picture of the average school child in Andover. He has twenty-four teeth; eight of them are diseased; 16 of them are discolored with unsightly accumulation of food and deposits, or else he has some noticeable malformation, interfering with breathing or mastication, or disfiguring his appearance; three of the four first permanent molars are seriously affected, or else one is already lost and another decayed. He has either never put a tooth brush to his teeth, and has had toothache more or less during the past year, or he is suffering excruciating pains, and has never seen the inside of a dentist office. Furthermore the chances, as will be shown later, are that he has suffered from malnutrition, that he is shorter and lighter than he should be, and that his school work has been impaired. And what is sadder, his condition is growing continually worse.

As I have said before, with the advancement of civilization there has been a corresponding degeneration of the human jaw and teeth. According to Dr. R  se, only 2.5% of Eskimos have defective teeth, 3 to 10% of Indians, 3 to 20% of Malays, 40% of Chinese, and 80 to 96% of Europeans; while 97% of Andover school children are thus afflicted.

I am sure we do not wish to stop the advancement of civilization, but we should like to save the teeth. Just as it is true that man in his evolution from the lowest monkey has lost twelve teeth, so it may be that the race is yet to lose more teeth. Indeed, already four of the thirty-two teeth now considered the normal number for man, give much evidence that they are about tired of appearing at all, and are ready to have their service to humanity called ended. Not to speak at length of the causes which combine against the teeth of man, we may briefly state, for the sake of what is to follow, the chief among them.

The changes in the physical structure of the body, incident to evolutionary progress; the lessening need of teeth as an initiatory organ of digestion; changes in the kind and composition of food; the general manner of living under modern social conditions, with its attending deteriorating effects; and, negatively, the fact that personal hygiene and care for the teeth have not advanced with sufficient rapidity to counteract these causes of physical degeneracy. For generations the brain has been encroaching upon the lower face and jaw. Only 8 out of 402 British soldiers had a width of jaw equal to the *average* of the Roman soldier, while the average American jaw is .37 of an inch narrower than that of the ancient Roman.¹ There is grave danger in these changes, the more because they are so imperceptibly gradual. But I do not believe that race development must be at the cost of the physical degeneracy of the individual. Modern education, modern science, medicine, and philanthropy are to triumph over these dangers and rescue the bodies of our children and of their children's children from physical wreckage. Physical health is still to remain possible in all the future changes of our race. In this work of reconstruction, in accord with the laws of health, professional and individual care of the mouth have no insignificant part to play.

There is a great need of a motive on the part of the people to care for their own teeth and the teeth of their children. There is a deplorable ignorance and inappreciation of the value of good teeth and the harm arising from their neglect. Education is the first and great need, and this may best be accomplished through efforts of dentists, directly and indirectly, with their patients, by published papers, in co-operation with philan-

¹E. S. Talbot: Degeneracy, Its Causes, Signs and Results, Contemporary Science Series.

thropic societies, regular physicians, school boards, and the public schools. These facts especially should be made apparent to all. That the great question of physical welfare, especially so in the case of children, is the question of nutrition. That what is digested and assimilated, rather than what one has swallowed, is the principal thing. That the proper mastication of food is an important step in the digestive process. That this is very apt to be thorough, especially with children, in the exact ratio to the condition of the teeth. I asked many children, "On which side do you chew your food?" Immediately came the answers, "On this side, or this, it hurts on the other." Or, "It hurts me to chew with my back teeth. I take a mouth full of food and a swallow of water to help me swallow." How can a child properly masticate its food when one or both sides of his mouth have sensitive, "jumping," shells of teeth, instead of solid bone? Or when his incisors meet in a crisscross so that his back teeth fall a quarter of an inch or more short of touching? Yet we are told that all degenerations result from a disturbance of nutrition at some critical period of growth. Nathan Oppenheim, in "The Development of the Child," advances strong testimony to his claim that it is nutrition that has far more to do with the mental physical welfare of the child than even heredity. We are told that mortality is greater beyond all comparison from the first to the tenth year of life, that a very large proportion of the physical ills of a lifetime are allotted to the period of childhood; that nearly if not quite one-half of these ills is due to derangement of the digestive apparatus, hence the importance of proper mastication of the food.

Again we are told that the mouth, when rendered foul through the decay of food and teeth, becomes a veritable hot-bed for the lodgment and generation of disease germs, an "entrance gate" for infectious diseases. The immunity of the physician, though constantly exposed, is due far more to cleanliness of mouth and person, than to anything else. By the lowering of the general tone of the physical condition, the presence of decaying teeth and unclean mouths, have much to do, it is asserted by physicians, in the contraction of sicknesses in general. The dentist and the physician have a grand opportunity for co-operation for the good of public health.

Dr. Edwin Collins, in the 19th Century, for July, 1899, called attention to the relation of sound teeth to good scholarship. One will readily admit that ability to work well at one's studies necessitates good digestion and freedom from pain. How can a child suffering night after night with toothache do well in school? The answers of the children show that one-fourth of them during the past year suffered a great deal from toothache. "I had the toothache so I could not sleep much nights for two weeks;" "I have had very bad toothache;" are some of

the statements of the children to me in private. Feeble-minded children, up to seventeen years of age, compare very favorably with normal children in the condition of the teeth despite the obvious disadvantages of the former in caring for them.¹ The same is more strikingly true in the case of the inferior races. Many children naturally very dull have excellent teeth. We could possibly draw no inference to the effect that naturally good tooth-structure has a direct relation to high mental ability, but who can doubt that the general health and the general condition of the teeth, so far as they mutually affect each other, have an important bearing upon the school work of children?

The children examined were classified by their teachers as bright, average, or dull. Among the children with good teeth there were found 13 bright children to every 10 dull children, but among the children with poor teeth were found only 8 bright children to 10 dull children. It was found also that very generally the average age of children with good teeth, in any grade, was less than that of children with poor teeth for the same grade. So far as these statistics go, they seem to indicate that the chances of children with good teeth are appreciably better for scholarship and promotion than are those of children with poor teeth.

But, on the other hand, it should be stated here that a very bright child may have very poor teeth, the bad condition of the teeth being, in a considerable measure, induced by over-stimulation of the brain. There seems to be a relation between over-expenditure of nervous energy and imperfect development of the teeth. Every bright, nervous child with not very good teeth, should be guarded from over-pressure in school work, especially during the years when the teeth are growing.

A normal increase in height and weight of children, is perhaps the best evidence of good physical condition. Many careful measurements of thousands of school children seem to show that, taking a large number of children, there is a relation between superior height and weight, and physical, mental and moral superiority. I refer particularly to the measurements conducted by McDonald in Washington, Klein in Worcester, Porter in St. Louis, and Byer of the United States Navy. Since nutrition is the basis of development, and since the teeth have an important part to play in the process of digestion, it seemed interesting to know whether any relation could be traced between mental and physical superiority and superiority of the teeth. Owing to the comparatively small number of children who could be grouped for comparison, whatever re-

¹ Dr. Ales Hrdlicka: Report of the Managers of Syracuse State Institutions for Feeble-minded Children, 1898.

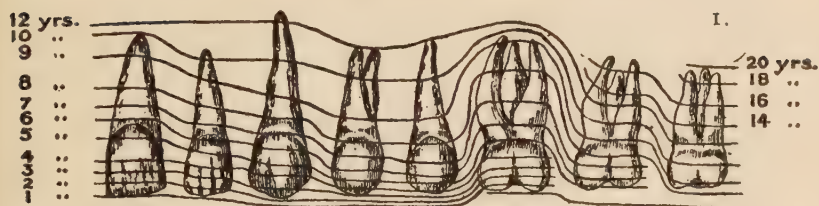
sults were found are not claimed to be perfectly reliable. I do not wish to be understood as making any broad generalization on the data gathered, but the results certainly deserve serious consideration.

The weight of boys with good teeth was compared with the weight of boys with poor teeth at each age from five to fourteen, also the weight of the girls with good teeth with weight of girls with poor teeth of corresponding ages, there being twenty groups in all. The children with good teeth surpassed children with poor teeth in weight in 15 out of the 20 groups. Combining the average weights of boys and girls with good teeth for each age, and the weights of boys and girls with poor teeth for corresponding ages, and comparing, it was found that the children with good teeth surpassed in weight the children with poor teeth at all ages except at eight and thirteen. Combining the averages of children with good teeth for all ages and the averages of children with poor teeth for all ages, the children with good teeth surpassed the children with poor teeth in weight by an average of 2.7 lbs. per child. In other words, children with good teeth were on the average about half a year ahead of the children with poor teeth in physical development, as shown by weight.

Parents should know, also, that the calcification of the teeth begins long before the child is born; that any disturbance of nutrition due to bad heredity or maternal impressions become registered upon the teeth; that the enamel organs and dentine germ of the permanent teeth form before birth; that the first permanent molars begin to calcify before birth; that from birth to five years of age is the critical period for the calcification of the permanent teeth. It is the general notion that it is of little moment whether the baby teeth decay or not. So far as they effect the general health and condition of the mouth, the baby teeth have a very great influence upon the permanent teeth. So far as all the permanent teeth except the wisdom teeth are concerned, their natural fate is fixed before the child has cut his permanent front teeth.

The following diagram of the teeth is instructive. The lines show what teeth and what portion of each tooth may suffer from malnutrition at certain ages. To find what teeth and what portions may suffer at 3 years of age, for example, follow along the three-year line. It will be seen that the central and lateral incisors will suffer, just below the middle of the enameled part, the cuspid at the end, and the sixth-year molar.

In spite of the fact that the early years and the care of the temporary teeth are so important, it was very rare to find that the temporary teeth had been particularly cared for. Of the 1,840 cavities in the baby teeth, only 48 had been filled, *i. e.*,



2.6 in each hundred. Very few of the children under 6 years of age brushed their teeth or had them brushed. There is no reason why children of 3 or 4 years of age may not brush their own teeth, even so acquire the habit that they will feel uncomfortable when their teeth are not clean.

Dr. W. D. Miller, of Berlin, has shown that there is a micro-organism concerned in the decay of the teeth. These microbes, infectious in character, lodge upon some hollow or unclean portion of the tooth. They secrete an acid which dissolves the enamel of the tooth, and they burrow gradually deeper and deeper into the tooth. It is supposed that these microbes do not live upon the tooth substance, but upon the sugar and starchy foods which have been acted upon by the saliva of the mouth, while the acid secreted caused the crumbling away of the tooth. Hence the importance of keeping the teeth perfectly clean. A tooth that is smooth and perfectly clean can scarcely decay.

Parents should know of the effect of different foods upon the teeth. Unlike other portions of the body, after the enamel has once been formed there is no cell for nourishing or repairing the enamel. Whatever effect the food is to have upon the formation of enamel of the teeth, must take place before a certain age. In the case of infants, next to mother's milk, cow milk diluted with barley water is the best food for the teeth. When the child is old enough, the teeth may be well nourished by means of rolled oats, rolled wheat, graham, meat, fish, eggs and fruits. The natural order of food for man according to Dr. Röse is the following: Flesh, whole grains, vegetables, bread, cooked meat, milk, butter, fat. Races which live largely upon flesh are least afflicted with caries.

Children should not be fed largely upon soft and sloppy foods. The strong exercise of the teeth in mastication seems to be the natural and necessary accompaniment of sound teeth. Children should have something to chew upon. It is significant that an examination by Dr. W. Smith of the Sioux Indians in Buffalo Bill's Wild West Show, disclosed the fact that they were entirely free from caries of the molars and premolars,

¹ Reproduced from Degeneracy, Its Causes, Signs and Results: E. S. Talbot, Contemporary Science Series.

but that the molars were worn.¹ The same was found to be true in the case of the teeth of the Egyptian skulls brought to England by Dr. Petrie. Dr. Smith claims that the grinding surfaces of sound molars are worn, but diseased molars are not worn, and that this fact is strong testimony to the necessity of vigorous exercise of the teeth in maintaining a healthy condition.

Even the degree of the hardness of the water is of importance. I am aware that the influence of the drinking water upon the teeth is considered of no importance by some authorities, but it is a fact worth notice that in the extensive investigation in Germany, there appeared a wide margin in favor of the teeth of children in regions rich in lime; 2,973 children examined in a region poor in lime showed that 34.9 % of all teeth were diseased; an examination of 2,708 children in a region rich in lime showed that only 16.7 of the teeth were diseased. It is interesting to note that the degree of the hardness of the water in the region most afflicted with caries, was .5. In the region of better teeth, 8 to 12. The degree of the hardness of water in Andover is from 1.3 to 1.7. The percentage of diseased teeth among Andover school children is 31.4, which corresponds very nearly to the result of the German investigation for districts of equally soft water.

The part that the teeth have to play in personal appearance is by no means unimportant. A beautiful set of teeth adds very much to a face otherwise attractive, but no face can be said to be attractive which is disfigured by a poorly kept and irregular set of teeth. Malformation of the mouth and teeth may cause undue self-consciousness and diffidence on the part of the possessor, even a moroseness of disposition, which greatly hinders his happiness and success in life. By a sort of intuition which we could scarcely rid ourselves of if we would, we are impelled to discount people with deformities. It is a great pity that parents should allow a child to bear the extra burden, in his search for success and happiness, of deformity in any degree that is within their power to have remedied. A careful dentist tells me that about 90% of the various deformities found in the Andover children may be remedied wholly or in a great measure, if undertaken in due season.

That the decay of the teeth may cause deafness, is well understood by aural surgeons. Dr. Samuel Sexton, before quoted, says: "I have long been in the habit of examining the teeth of children brought to me with aural diseases, and it happens very often that unsuspected dental irritation is found to coexist, to which the aural irritation is in some measure attributa-

¹ Journal of Anthropological Institute, Vol. XLVI, p. 446.

ble. Among the large number of school children who attend the aural clinics at the infirmary it is rare to find one where dental irritation should not be considered as a causative factor."

It seems to me that the dentist has a responsibility in this condition of teeth of the school children. His part is more than to receive children in his office, do his work honestly and well, and collect his fees. With the dentist rests naturally the burden of the general enlightenment of the public. Whose fault is it that the great majority of parents, even those fairly well educated, never dream that their children have any permanent teeth until they see the incisors coming, much less that their child of eight has had four permanent molars for two years, and that two or even three of the four are already diseased? "Mamma knows about that tooth," said a little girl to me, when I called attention to a cavity in one of her first permanent molars, "but she is not going to have it filled, because it is a baby tooth." The record of these first molars, shows that this mother, apparently more thoughtful than most of them, because she did intend to have the permanent teeth filled, was only one of a great majority who believe that the sixth-year molar is a baby tooth.

No one dentist may perhaps take upon himself, for obvious reasons, the enlightenment of the public in regard to the care of the teeth, especially so far as it concerns his profession, but an association of dentists, in any community, may and ought to do so. There are many ways by which this might be done, it seems to me, in a town like Andover: timely articles in the local paper on the teeth and their care, by the members of the association; co-operation with the regular physicians. Mothers' meetings are common now even in small towns,—a timely talk to mothers on the care of the teeth of infants and young children, would be gratefully received, I am sure. The association should know what instruction is given in the public schools in regard to the teeth, what text-books are used, what charts, etc. Superintendents, I believe, would welcome any suggestions from dentists in this matter. Every town has its characteristic local conditions. Perhaps a manual for the use of the schools could be prepared, which would be far superior to the treatment in any text-book that could be purchased for that town. In some of the more progressive towns, dental inspection of school children might be established through the efforts of the local dentists. This must come in time. The day is approaching when every child in our public schools will be considered as a being with a body as well as with a mind. With the burden of public enlightenment, comes to the dentist also the responsibility of the policy or lack of policy of public officials in this matter, so far as it concerns public institutions, especially

the public schools. If this responsibility rests not on the dentist, then on whom? And here comes up the question of the poor. Dr. Richard C. Newton, in the *Dental Cosmos*, for May, 1896, says—"the dentists, if they wish to be esteemed by the public generally as specialists of medicine, must give of their time and skill to treating the poor. It is the willingness to give thought, time and skill to the service of the poor which has elevated and ennobled the profession of medicine. It is this that has made it the most generally beloved and respected of all the professions." How widely the free clinics for the poor have been established and how greatly abused, I do not know, but there are still many deserving children without them. As one result of this work in the Andover schools, there will be established mainly through the generosity and philanthropic spirit of our local dentists, a dental room, open at least three forenoons a month, to the service of the children of the poor.

I desire in closing to acknowledge my great indebtedness to the dentists of Andover, Drs. Gilbert, Hulme, and MacIntosh, for their very generous assistance and helpful suggestions. Without many hours of hard work on their part so freely given, this investigation could hardly have been conducted. I am indebted, also, to Dr. Wm. H. Burnham, and Librarian Louis N. Wilson, of Clark University, for suggestions and aid in securing literature on the subject.

A FEW LESSONS TO BE LEARNED FROM EUROPEAN SCHOOLS.

By SUPT. THOMAS M. BALLIET.

So far as elementary education is concerned European countries have, to say the least, as much to learn from us as we from them. The spirit of our best primary schools, the sympathetic relation between teacher and pupils, and the spontaneity of both are seldom found in similar schools in Europe. This is partly due to the fact that in America the teachers in these schools are women, partly to the fact that there is less direction and prescription by central authority, and, consequently, more freedom allowed teachers, and partly to the fact that we have studied children more scientifically and more sympathetically than any other nation. This last fact is coming to be recognized abroad, and European educationists are looking to this country both for inspiration and for light on the general subject of child psychology.

Whilst the best American primary schools are somewhat better than the best primary schools abroad, the same cannot be said either of our grammar schools or of our high schools. The teaching in the upper classes of European elementary schools is in many respects considerably more effective than that in our higher grammar grades. The teachers are more scholarly and have mastered far better than American teachers the matter to be taught. This is especially true of such subjects as geography and history. They know better how to prepare the subject matter for class instruction, how to distinguish between the relative importance of various parts, and how to present them in true perspective to their classes. We might say that the American teacher excels in so far as a knowledge of children conditions effective teaching, the foreign teacher excels in so far as a knowledge of subject matter and the pedagogical principles growing out of it determine the character of instruction. The American grammar school is relatively not so efficient as the American primary school. This difference between foreign elementary schools and our own may, no doubt, be partly traced to the normal schools. Foreign normal schools, especially those of Germany, train their teachers better for the work of the higher grades of the elementary schools than for that of the grades corresponding to our primary schools, whilst

American normal schools do the reverse. Few of our normal schools train teachers well for grammar school work.

There is far more oral teaching in the best foreign schools than in our own, and far less of book study. A lesson is seldom assigned to be studied until it has been taught. There are virtually no "study periods" during the school session, and yet in the elementary schools there is no more home study required of children than is required in our own. If the American teacher should master the subject matter as the foreign teacher does, and then present it with the living voice instead of requiring children to learn it from books, the work of our grammar schools would gain materially in effectiveness. The time is not far distant when the higher classes in our grammar schools will be taught by college graduates who have also received professional training, either in college or some superior normal school.

Such subjects as singing and drawing are taught far better in good American schools than in European schools.

The chief defect of the foreign elementary school is the fact that it does not connect directly with any higher school which prepares for the polytechnic school and the university. There is, however, a system of "continuation schools," corresponding roughly in aim to our evening schools, to which graduates of the elementary schools can go, and which in some sections of Europe they are compelled by law to attend. In these schools the elementary mathematics, French, English, drawing and drafting are commonly taught. In addition to these there are many trade schools. Berlin had in all twenty-eight of these continuation and trade schools in 1899, with an attendance of 25,000 students. The teaching in these schools is fully as efficient as that in our best American high schools, and some of it is better. There is no system of evening schools in our own country which can bear comparison with these schools. It need not be added that teachers in these schools are appointed on merit, and that the same qualifications are demanded of them as are required of day school teachers.

Technical and commercial education is developed in all the countries in Central Europe far more than in our own. Their higher technical schools are of a higher grade than ours, and they have between them and the trade schools various schools, like those at Chemnitz and Prague, whose aim is to prepare students for positions as foremen in shops, superintendents of manufacturing establishments, and for similar positions. We have no schools exactly of this type. What we need is elementary technical schools and trade schools at public expense.

Commercial schools are rapidly developing in like manner abroad. These are not only such as are of university rank, like

those of Antwerp, Leipzig, Vienna, and Paris, but also others like the one at Gera or Nuremberg, which correspond in rank somewhat to our high schools. A few of our universities have already organized courses in commerce and finance, and others will soon follow. There remains the problem of providing a commercial school of the rank of our secondary schools.

These needs can be provided only by broadening our secondary education. The division of high schools into "English" and "Latin" is virtually a thing of the past. There will be at least three types of high schools in the future, and they are indeed now in process of development: the literary high school, the manual training high school, which is rapidly becoming a technical school, and the commercial high school.

Teaching in foreign countries is recognized, not in name only but in fact, as a profession. This is possible on four conditions. First every teacher must have received professional training. Secondly, there is a rigid State examination to bar out the unfit. Thirdly, there is permanency of tenure after a definite period of trial teaching; and fourthly, there is a pension which makes teaching attractive enough to draft into the service superior ability, and also makes it possible to relieve the schools of superannuated teachers. In order to elevate teaching to the dignity of a profession in this country, it is essential that these steps be taken in the order here stated, and not in the reverse order; and yet the latter is precisely the one proposed in some quarters. Nothing could be so injurious to the interest of education in our country as to provide permanency of tenure and a system of pensions, and still allow teachers to be appointed without thorough professional training through political influence and personal favoritism.

It is, however, from the secondary schools of Europe that we have most to learn. Their organization is quite similar in all countries of continental Europe. The course is generally seven, eight or nine years in the case of those which fit for the universities and the higher polytechnic and commercial schools, and six years in those of lower grade. Pupils enter at the age of nine, ten or eleven, and the average age of graduation is eighteen or nineteen. There is an entire absence of any institution corresponding to the American college. These secondary schools cover the years of the upper five classes or grades of our grammar schools, the four classes of our high schools, and the first two classes of our best colleges. They accomplish in nine years what it takes us eleven or twelve to accomplish. This is made possible in three ways. First, by separating at the age of nine, ten or eleven the pupils who are to fit for the higher institutions of learning from those who are to enter practical life at the end of the elementary school course. Secondly,

some foreign language, either ancient or modern, is begun at once on entering, and algebra and geometry are introduced several years earlier than is the case in our own schools. The "common branches" are taught somewhat less extensively than in the elementary schools. Thirdly, much more extensive and thorough preparation is required of the teachers in these schools than we require of teachers in our high schools. To become a teacher in one of these secondary schools, the applicant must have had what is equivalent to a college education, followed by at least three years of university study, then he must have devoted (in Prussia) a year to the study of pedagogics, and another year to trial teaching. After all this preparation he can obtain only a license to teach those subjects to which he devoted special study at the university, and in which he has passed rigid examinations. It is teachers with this kind of preparation into whose hands are placed little boys of nine, ten or eleven years of age at once on entering the secondary school.

An effort has been made in this country to shorten the time required to fit students for the university and the professional schools by introducing high school studies into our grammar schools, by "enriching" the grammar school course. The result has been on the whole disappointing. Foreign nations have solved the problem, and we must sooner or later adopt their solution. It consists, as pointed out, in the earlier separation of pupils who are to fit for higher institutions of learning from those who expect to enter practical life on leaving the grammar schools, and in demanding for our secondary schools teachers who have had not only a college education, but who have had university training and who have made some study of the science of education besides. There ought to be grammar schools in every city for children who are later to fit for college, in which a four years' course could be arranged to prepare for the high school. In large grammar schools double courses can be arranged, as is done in Cambridge, Mass.; in small schools this is not practicable. Under certain conditions the higher grammar grades may, with advantage, be incorporated into the high school, but this is not generally the most satisfactory solution.

It need not follow from this that our school system become undemocratic. There can be courses kept in our secondary schools which will directly connect with the ordinary grammar schools, and in this way the door to the higher institutions be kept open to all.

The question of shortening the time required to prepare for the professional school will probably find a further solution in a readjustment of the work now done by the college. By re-

quiring of high school teachers such training as has been suggested, and by adding two more years to the present high school course, our best high schools could fit for the university and the professional school fully as thoroughly as the colleges did twenty-five years ago. The course would be a little less extensive, but the quality of the teaching would be better. This would be converting our high schools into an institution resembling somewhat the secondary school of continental Europe.

The work of the first two years of our best colleges belongs properly to secondary education, and ought to be done in the high schools; that of the last two years, which is an attempt at university work, ought to be assigned to the university and the professional school.

This dropping out of the college would make it possible for our universities and professional schools to develop. The courses in these institutions ought to be lengthened by at least one year. The fact that we have no secondary schools of high grade, and the fact that we have developed the college before the university, and allowed it to occupy partly the ground of the secondary school and partly that of the university makes the problem of developing the university a difficult one.

Our technical schools are only of college rank. The best technical schools of Europe are of university rank. Students in this country will never in large numbers spend four years in a college, and four years more in a technical school. If the high schools would add two years to their course of study, and the technical schools would require these additional two years of preparation as a condition of admission, the latter could place themselves virtually on the same plane as the university; and it is difficult to see how they will ever be able to accomplish this in any other way.

Moreover, the extension of the high school course, so as to make it fit for the professional school, would lessen materially the expense of higher education to the student inasmuch as he would be able in most cases to fit for the professional school without leaving his home. In this way the door to the higher education would be opened to many against whom it is now closed.

There are, no doubt, many difficulties in the way of such readjustment of secondary and higher education, some of which, however, are probably more apparent than real. The value which all English speaking nations attach to the A. B. degree would probably cause deep regret at the disappearance of the college, for no one would advocate the conferring of degrees by a secondary school. This, however, is a matter of sentiment, and would probably not be allowed to outweigh positive educational and material advantages. The question as to what is

to become of the college is one which would probably settle itself by a natural process of adjustment to changed conditions. The stronger ones could be converted into small universities doing superior work in a few related departments, and the weaker ones would do purely secondary work like the high schools.

SOME CRIMINAL TENDENCIES OF BOYHOOD; A STUDY IN ADOLESCENCE.

By EDGAR JAMES SWIFT, State Normal School, Stevens Point, Wis.

A few years since, while studying the boys confined in the Wisconsin Reform School,¹ the writer was impressed by the fact that, so far as he could learn from conversation with the boys and from a careful study of the "history book" of the institution, these boys had done hardly more serious things than his memory could recall from his own boyhood and that of his associates, who certainly were not bad. Reflection upon the subject and conversation with teachers and others led to the conviction that a study of the youthful escapades of some of those men who have come out all right would be valuable in throwing light on youthful delinquency. A questionnaire was therefore prepared and sent to men of unquestionable moral standing. Answers were received from forty-three teachers, including college and normal school professors, twenty-five college students and senior students of this school, and thirty-five of a miscellaneous class, including lawyers, ministers, dentists, merchants, etc.

The answers will not be classified in per cents as the writer is aware that no such mathematical accuracy can be attributed to them. He is satisfied, however, that they are a fair average of what the boyhood of conscientious moral men has been. If the results err at all it is not in exaggeration of criminal acts, but rather in the incompleteness of their enumeration.

I. Larks and adventures play a large part in the life of most boys of an independent and initiative nature, and there seems to be a keen enjoyment of feeling independent of law. Of the forty-three teachers, thirty-three said that they enjoyed larks and adventures as boys, while four enjoyed them "if they were not too risky." Twenty-nine liked the excitement of doing what was forbidden, while twenty-six enjoyed the feeling of being independent of law. The following indicate the general tone of the replies:

"I am satisfied as I look back upon my boyhood that the only thing

¹ *Vide* Am. Phys. Ed. Review, Vol. III, pp. 170-178.
North Western Monthly, Vol. IX, pp. 36-41.
Proc. N. E. A., 1898, pp. 910-916.

that kept me from going farther was fear of the law. I liked to be independent of it, and wanted to be, but usually I was afraid of it."

"Not if the law was liable to catch me."

About the same proportion of students and a rather larger proportion of the miscellaneous group gave similar answers.

"I probably would have enjoyed them had I had a chance."

"I was too sickly to engage in any, otherwise I would have enjoyed them."

II. Truancy. Running away from home may begin as soon as the child is able to walk, and the impulse sometimes continues active in one form or another through childhood, or even into adult life. The desire to run away from home is not confined to boys in unpleasant surroundings. In a class of twelve or fifteen boys whose homes are all that could be desired half a dozen or more will be found who planned more than once to run away. The writer has a distinct recollection of partially arranging to leave home several times. The exciting cause is commonly some book of adventure in which a boy plays a striking part.

This wandering tendency seems to be a survival of the migrations of primitive races.

The migratory instinct of animals is too well known to need more than passing notice. This instinct probably had its origin in the search for conditions suited to the animals' wants. The chief cause of migration has been the search for food.¹

"The young salmon which is born in a mountain stream is soon impelled, by something in its nature, to journey downward, even for many hundred miles, until it reaches the unknown ocean, where it would discover, if it had faculties for anything so subjective as discovery, that, while it was born in a little brook, it was made for life in the great ocean."²

"The migratory instincts of the northern hares and squirrels, and more particularly of the Norway rat and lemming, which in severe winters move in amazing numbers in direct lines over lake, river, and mountain, overcoming all obstacles that might be placed in their path, are well known."³

"The Kamchatka rats, under the pressure of numbers, are stated by Pennant to travel westward for a distance of eight hundred miles or more."⁴

"Turtles, during the ovipositing season, move in considerable numbers from one part of the sea to another, and they are stated to find their way annually to the Island of Ascension,

¹ *Vide* Wallace's *Geographical Distribution of Animals*, Vol. I, p. 25.

² W. K. Brooks: *Pop. Sci. Month.*, Vol. LII, p. 784.

³ Heilprin: *Distribution of Animals*, p. 40.

⁴ *Ibid.*, p. 40.

which is distant upwards of eight hundred miles from the nearest continental land mass."¹

The impulse inherited from their animal ancestors, strengthened by the need for abundant food, has firmly implanted in the race the desire to roam.

The home of primeval man in palæolithic times "was along the shores of seas and the banks of streams. Up and down these natural highways he pursued his wanderings, until he had extended his roamings over most of the habitable land."²

"What prompted him and all savage tribes is not always the search for food. The desire for a more genial climate, the pressure of foes, and often mere causeless restlessness, act as motive forces in the movements of an unstable population. Certain peoples, as the gypsies, seem endowed with an hereditary instinct for vagabondage. The nomadic hordes of the Asiatic steppes and the wastes of the Sahara transmit a restlessness to their descendants which in itself is an obstacle to a sedentary life."³

During early geological periods a strip of land connected France with England, and man probably crossed over from the continent.⁴

Tramps and gypsies furnish examples of the persistence of this slowly disappearing race tendency to migrate. Many men become tramps because the impulse in them to wander is so strong that they cannot resist it.

Truancy is not evidence of youthful depravity. It is temporary reversion to the migratory habits of our ancestors. It is the awakening in the boy of the natural life of the race, and a revolt against the oppressive gloom of the schoolroom.

The following replies are from teachers:

"Yes, I ran away from school as often as I dared until thirteen years of age."

"No, but solely because I had more fun in school than out."

"Yes, I never got over it in the schools."

III. Anger and Fighting. Anger probably arose as a substitute for reflex responses of the organism to pain. Hence it is one of the oldest elements in our psychical life. This accounts for its overwhelming force. Anger is physical,⁵ not only in its primitive form, but also in its more complex manifestations. It is not caused by organic changes, but is the feeling of these changes. In anger, as in every emotion, "there is an initial fact, idea, image or sensation, but the emotion itself is nothing

¹ *Ibid.*, p. 41.

² Brinton: *Races and Peoples*, p. 74.

³ *Ibid.*, p. 75.

⁴ *Vide Ibid.*, p. 376.

⁵ *Vide* Lange's *Les Émotions*.

but a sense of those organic changes which precede and condition it."¹ Its control is dependent upon inhibiting nervous impulses. These inhibiting impulses may be reflexes of a low order, as when you immediately allay the anger of a fierce dog by giving him a piece of meat, or they may be of a higher kind resulting from ideas of retribution reacting on the individual, or, again, they may be of a still higher sort due to ideas of duty, responsibility, etc. For this reason the conditions amid which a child is reared will have a strongly determining influence upon his control of himself. Among savages anger was allowed free vent. It was the means by which they "worked themselves up" for war. Doubtless it also served a useful purpose in making the timid courageous.

The justification for fighting is not the need for self protection, though it could be defended also on that ground. Its value, however, is psychical. Fighting, in some form, is one of the first means by which the mind becomes accustomed to intense action. To fight well a boy must be capable of severe concentration of attention. He learns to judge accurately and quickly. "To do things quickly *and* well is more than to do them quickly *or* well."² Fighting develops self-control, as one never defends himself successfully in angry excitement.

It is a law of organic growth that tissue adapts itself to the tension to which it is put, provided, always, that the strain never increases suddenly beyond the strength of the resisting tissue. Bone "is composed of numerous fine bony plates so arranged as to withstand the greatest amount of tension and pressure, and to give the utmost firmness with a minimum expenditure of material."³ "If it is broken and heals out of the straight, the plates of the spongy tissue become rearranged so as to lie in the new direction of greatest tension and pressure: thus they can adapt themselves to changed circumstances."⁴ This adaptation to strain is true also of muscular tissue, and probably of brain tissue. Rearrangement and development of brain substance in adaptation to psychical tension is the underlying principle of brain training. This is the physiological basis for the fact that the mind grows to the mode in which it is habitually exercised.⁵

Twenty-eight of the forty-three teachers had strong tempers, and twenty-two of these said that they were unable to control

¹ G. Stanley Hall: *Am. Jour. of Psychology*, Vol. X, p. 589.

² Baldwin's *Social and Ethical Interpretations*, p. 143.

³ August Weismann: "The Effect of External Influences upon Development," p. 11.

⁴ *Ibid.*, p. 11.

⁵ *Vide* Carpenter's *Mental Physiology*, p. 470, and Swift, *Journal of Pedagogy*, Feb., 1900.

them. One answered, "usually, but when it got away from me I was wild. I tried to kill my brother once for tormenting me."

Another said, "I once killed a cow in a fit of anger."

"I was wild when angry."

A college professor wrote, "I remember trying to kill my brother once by hitting him with a stone after he had tormented me."

Eighteen of the twenty-five students had strong tempers, and nine were unable to control them. Of the miscellaneous group there were twenty-seven out of thirty-three with strong tempers, and fourteen of these could not control themselves.

Eight teachers, three students and five of the miscellaneous group remember seriously injuring a companion while angry.

"I assaulted and nearly killed a boy who had snowballed me."

"I injured my sister quite seriously."

"I broke a boy's nose, dislocated his jaw, and nearly put out one of his eyes."

IV. Robbing orchards, vineyards, and stealing watermelons. This is almost universal with those who have any opportunity.

Only three teachers, two students and six of the miscellaneous answered no, and a number of these said that they had no chance.

"Yes, I took great pleasure in it" (teacher).

An interesting phase of these acts is the thought of vicarious vengeance which sometimes prompted them. It illustrates a peculiar form of the expansion of what Professor Baldwin calls the *socius*.¹

"I assisted in robbing the orchards and vineyards of the farmers of a neighboring town with which our town was at variance. Two or three boys, well mounted, would take a small quantity of apples, almost under the eyes of the farmers, and gallop away before the farmer could get after us. We did it to anger the people and *spite the town*, and not for the sake of the fruit which we threw away along the road" (teacher).

Most of those who engaged in such acts looked upon them as legitimate fun. Only eight teachers out of forty-three, six students out of twenty-five, and five of the thirty-five miscellaneous considered it wrong at the age when they were doing such things. Besides those who gave an explicit answer of either "legitimate fun" or "wrong" the following replies are suggestive:

"The question of right or wrong did not come into my mind. I simply did it" (teacher).

¹ Social and Ethical Interpretations, pp. 22-33.

The following illustrates the youthful idea of punishing stinginess and righting a felt injustice:

"I did it because I thought it fun to see the owner get angry. He had melons to feed to his hogs, but would not give us boys any, so we helped ourselves" (teacher).

Children draw fine distinctions between wrong acts, and so justify themselves in doing something that is *not very wrong*, though they may admit that it is not quite right.

"I distinguished between taking money, real stealing, and taking fruit" (teacher).

"I only partially regarded it as stealing" (teacher).

"I did not consider that I was injuring anyone to any great extent, and I was bringing enjoyment to myself" (teacher).

"I considered it wrong, but I reasoned that it was *not very wrong*. I wanted the fruit, and I took it because I wanted it, rather than for the excitement. I thought it not so bad as taking other things" (teacher).

"Wrong, but not wicked" (college student).

"I thought it belonged to me if I could get it without being caught" (miscellaneous).

V. Taking things from parents, brother or sister seems to be quite common, the feeling apparently prevailing that taking things from members of the family was not quite so bad as taking them from others. Besides, if caught, so severe a penalty would not be inflicted.

"Yes, I took cigars. I did not smoke them, but traded them for things I wanted" (teacher).

"Yes, too numerous to mention" (miscellaneous).

"Yes, anything I wanted" (miscellaneous).

"Yes, a ring from my sister; and I gave it to another girl. I did not admit it for three or four years" (miscellaneous).

A special phase of this which probably prevails to quite an extent is illustrated by the following:

"Taking things from my brothers I viewed in the light of warfare, and I felt that it was getting ahead of them. I did not feel that their ownership amounted to much, or that there was any particular wrong in disregarding it" (teacher).

VI. Other escapades, of too varied a character for classification, include such acts as interfering with trains by flagging, greasing the rails, obstructing the track, throwing stones through the car windows, stealing old iron or coal, etc. Here, as throughout this paper, the acts were committed in early boyhood, and up to about fifteen or sixteen years.

"I got drunk and stole things from a store. Carried a pistol and fired it" (teacher).

"In company with another boy I stole some oranges from in front of a store" (teacher).

"I threw a cord of wood into a cistern used by a family" (teacher).

"I once stole a book, that irresistibly attracted me, from people

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whom my parents were visiting. The theft was never discovered" (teacher).

"I stole things from stores" (teacher).

"I once stole a thimble from a peddler, and at another time some fruit from a store. The last troubled me so much that the next day I bought some fruit there and, unseen, laid the money on the counter for what I had stolen the day before" (teacher).

"I stole from news-stands" (teacher).

"I stole railroad iron and explored other people's back yards to see what I could find to take" (student).

"I took a wheel off from a man's buggy" (merchant).

"I turned in fire alarms" (dentist).

"I obstructed highways and railroads" (locomotive engineer).

"About twenty of us created a disturbance for which we were arrested" (teacher).

"I stole mill files" (merchant).

"I stole fruit and nuts from a fruit stand" (teacher).

"We boys went out often on what we called 'cooning expeditions,' stealing things lying around" (teacher).

"Stole fruit. Marked a house all over with red paint. Tore up sidewalks and threw tin pails filled with stones at houses" (teacher).

"Stole two barrels of tar from a tar manufacturer for a fire. Used to throw stones from a hill down upon some Italian workmen. I might have killed some of the men as I did not select the smallest stones. We boys used to turn the street car switches so as to send the car up the wrong track" (teacher).

"I stole things from a locked house in which they were stored" (teacher).

"One Sunday evening, in company with other boys, I stole a railroad hand-car and ran it off down the track" (teacher).

"Stole some iron wheels from a farmer's machine" (teacher).

"Uncoupled cars standing on side-tracks when they were being switched onto other tracks. Then I hid to watch and hear the brakemen swear when they found the cars left behind. I also threw over wood piles, tore down fences and greased the railroad track to stop the train" (teacher).

"I set fire to my uncle's barn to see it burn. With the help of other boys I put the carriage of a teacher upon the roof of his barn" (teacher).

"Set fires in woods to see them run" (teacher).

"Pulled a farmer's wagon a long distance away. Set the brakes on a through freight train so that I could get off" (teacher).

"Stole a man's horse and buggy, and was gone four days before he got track of me. With other boys I ran off with a hand-car, and when we heard, in a neighboring town, that the company's agents were after us we left the car and ran away" (teacher).

"Sent in false fire alarms for fun. Have placed large rocks on the street car track" (student).

"Shot through the windows of empty houses with a revolver" (student).

"When eight or nine years old I was taken into a beautiful park in Chicago, and while unnoticed I stamped my foot into the midst of a beautiful flower bed" (teacher).

"Sold eggs and kept a part of the money with which my parents expected me to buy groceries. This was frequent up to my fifteenth year" (student).

"Stole chickens, rabbits, fruit and cigars" (student).

"Burned buildings, stole fruit from stores, and often greased railroad rails" (barber).

"Pushed an outhouse over a bank onto a flat car below, and then started the car down the grade. Put a railroad spike onto the track on a heavy grade for a flat car loaded with men to bump over as it shot down the grade" (merchant).

"Broke into our schoolhouse through the window, and tore up and carried away some books and pictures. Hired a boat, when about fourteen years old, intending to go to Milwaukee. I left it about six miles away and went off on foot. I do not know whether the owner ever recovered the boat or not" (lawyer).

"As a college student I stole a very valuable pair of elk horns from a front hall. Blew up with powder an unused gas tank belonging to the city gas company" (manufacturer).

"Stole powder from a quarry. Took a hand-car many times from the roundhouse, and after using it I left it on the track anywhere" (merchant).

"Broke into a house while the occupants were at church and stole a lot of things to eat" (farmer).

"Cut off a horse's mane and tail and painted him. Pushed a fine carriage into a ravine and smashed it" (dentist).

"I switched a train from the track. Set fire to beds to get removed from one school to another" (Searcher of Records).

"In company with other boys I greased the rails to see the train stop. Several of the boys were afterward sent to the reform school" (teacher).

"Several of us boys stole old iron from the scrap-pile of a tin shop and sold it at a foundry. We did not do this so much for the money as to see if we could do it without being detected" (teacher).

"I drank and gambled as a boy. On numerous occasions I tipped over small houses having blocks for alfoundation. A family was living in one of them at the time. I was arrested several times" (lawyer).

"I was one of a crowd of boys who put obstructions on the railroad" (locomotive engineer).

"I stole rags and sold them again. On one occasion I sold the same lot of rags three times. Stole copper bottoms from boilers in yards, where they were placed to dry, and sold them. At one time I struck a policeman, who was about to arrest me, on the head with a grub, and nearly killed him" (merchant).

"I stole lead pipes from new buildings. We cut the lead and melted it. Detectives got after us, and so we quit. Stole rabbits and pigeons" (merchant).

"Forged my mother's name to a note asking for samples of cloths, prices, etc., and presented it at the store when most of the clerks had gone to dinner. The object was to occupy the clerk's attention while a friend, who has since served a term in the penitentiary, stole things from the store. Some of us boys broke into a store at night and stole bottles of pop. We afterward took back the bottles and received pay for them as empty pop bottles" (skilled machinist).

"Stole turkeys from farmers" (teacher).

"Stole fruit and nuts from fruit stands" (teacher).

"Stole coal and iron from the railroad. Tried once to pass a counterfeit five dollar bill. I knew it was counterfeit" (teacher).

"Smashed signs and did general damage. I was seldom or never the one who did the deed, but I was one of the gang" (teacher).

"Dropped a stone down a mining pump and caused a smash-up. Assisted two other boys in breaking a flood gate" (student).

"I greased rails to stop a train. Set fire to dry grass in a pasture,

and it burned off nearly all the pasture. Stole candy from a candy store " (student).

"In the region in which I lived as a boy nuts were held to be as strictly private property as fruit, and I made a practice of stealing them. In some cases I sold them at a store for several dollars. I felt that this was legitimate poaching, not even so bad as stealing fruit, in which I nevertheless engaged. In taking nuts the fun was a fully equal motive with the gain " (teacher).

"In company with another boy I once tied a handkerchief to a stick and propped it up on the railroad track and stopped a freight train. It was exciting sport which we enjoyed keenly because we imagined it was such a daring infraction of law " (teacher).

"I used to steal iron from a pile at a hardware store and sell it. I would then steal it from those to whom I had just sold it and sell it at the hardware store from which I first stole it " (teacher).

"I stole old iron from the railroad track, but I did not dare sell it, because I had it from tradition among the boys that the buyer would expose me " (teacher).

There is a decided feeling among boys that what they find, or overcharge given them by mistake, belongs to them.

"I did not return a \$2½ gold piece that was given me by mistake for a ten cent piece. I knew what it was when it was given to me " (teacher).

"Yes, I have found articles of value, and I always considered such things the finder's property " (teacher).

"I would not have tried to find the owner had I found anything " (student).

"I found money in a pocketbook. I did not try to find the owner " (lawyer).

"I once found \$5. I thought I knew to whom it belonged, but I felt that he could afford to lose it, and I considered it a kind of god-send " (Searcher of Records).

"I found a \$5 bill for which I did not seek the owner " (merchant).

"A gold sleeve button of quite a little value, and a woman's breast-pin. I laid them away " (teacher).

About one-half of the several groups admit that they drank intoxicating liquors while boys. The question "were you ever, while a boy, drunk," was conspicuously unanswered. Seven teachers, four students and fifteen of the miscellaneous group said that they were.

"I enjoyed the excitement, and thought it manly " (teacher).

VII. The most serious offence with which the questionnaire dealt was stealing money. The subject was divided into two parts, taking money from parents and from employers.

About one-fourth of the teachers said that taking money from their parents was a more or less common occurrence. One-half of the students and about two-thirds of the miscellaneous group made the same admission. A good number had no chance, but are sure that they would not have hesitated had opportunity offered.

A professor in one of our eastern universities wrote in reply—

"I do not remember ever taking money from any person. I cannot now account for my scruples on that score, but I suspect that I saw some boys very severely punished once for taking money, and I unconsciously came to the conclusion that money was not a safe thing to steal. I know that I would not have hesitated to take anything which I wanted from my brothers or any one else, when I was seven or eight years old, if I felt reasonably sure that I should not be detected, but I was afraid to take money."

"I stole money in small amounts, usually fifty cents at a time, from the cash drawer of my father's store whenever I wanted it" (teacher).

"I used to keep part of the change when I was given money to buy things for the family. I saved up twelve dollars in this way to redeem a pledge for the payment of a bill about which my parents knew nothing" (student).

"I took money whenever chance offered" (student).

"Once I took as much as five dollars" (teacher).

"I took as much money as I thought would not be missed, usually fifty cents or a dollar. Once or twice I took larger sums, according to what I wanted to get with it" (merchant).

"I took money in small amounts whenever I needed ammunition for my gun" (student).

Almost all agree that they divided stealing into degrees of wickedness. Few regarded taking money from their parents as very bad. The following are from teachers:

"I did not think it exactly stealing."

"I looked upon taking money from my parents as different from taking it from others."

"I did not consider it stealing."

"I knew it was stealing, and I would not have dared meet my parents' sorrow had they learned of it. Still I kept it up. As I look back over such acts I am certain that I never really faced the question of right or wrong. I simply did it."

From one-fifth to one-fourth of the several groups acknowledge taking money or articles of value from employers. When it is remembered that not all of those who were questioned had worked for others than their parents this proportion becomes a large one.

The growing feeling of part ownership is illustrated by the following from a college professor:

"As I now look back upon a period of twelve years' service, from 9 years of age to 21, I see how the feeling that I was part owner in everything steadily grew, and I would then make use of various small things without much thought about it; but still I kept it secret. Such things never amounted in value to over twenty-five cents at one time, and it was never money or clothing."

"When a close-fisted employer refused to let me have my clothes at cost I pocketed enough of his change to bring my clothes down to the cost mark" (student).

The following is from one who has lately entered the ministry, but who, at the time referred to, was a clerk in a drug store:

"I appropriated to my own use, without paying for them, toilet articles and other things."

The efforts of boys to satisfy their conscience and still enjoy the pleasures of an act in which they half feel they should not engage is shown in the following from a teacher:

"When a boy I worked in a candy store, and I consumed a good deal of candy without letting the proprietors know that I did it. I reasoned that it was expected that a clerk would eat about a certain quantity, and that it could not be wrong under these circumstances. My point of conscience was how to gauge this customary amount, and I think I fixed it at about all the candy that I wanted."

The amounts of money taken were usually small, but in one case as much as ten and twenty dollars were taken at one time.

It is not uncommon for some children who would not themselves steal to be willing, nevertheless, to reap advantage from the thefts of associates.

"Indirectly I encouraged others to steal. I obtained things which a boy of my own age wanted, and traded and sold them to him. He gave me money for some, and articles out of his father's store for others. I did not know positively that he took these things without his father's knowledge, but I had good reason to suppose that he did. I never inquired into the question. If I had known that he stole them I should have continued trading" (teacher).

The reasoning by which those, who took money or articles of value from an employer, justified themselves varied, but frequently there seems to be an attempt to satisfy their conscience. Sometimes a sense of injustice, real or imagined, suggested the theft.

"I was led to take money, etc., by telling myself that my employer was not paying me enough, that he had no right to make money for the few things that I wanted for my own person, and by remembering that he himself had taught me to deceive his customers" (student).

"I thought that I was not receiving enough pay for my work" (teacher).

"I took things from the store in which I worked because I thought that I had earned them" (teacher).

"I thought that if my employer would pay me more I could afford to buy the paper and other things that I took" (printer).

At other times the thought of justification did not enter the boy's mind. He did not face the question of right or wrong. He simply did it.

"I did not try to justify myself. I wanted the things and I took them, though sometimes I took things I could not possibly use" (merchant).

"I just took the money because I wanted it. I did not face the question 'ought I'" (teacher).

Again, the morality of the act depended on the amount of money or value of the things taken.

"I felt that it was so small it would not amount to much" (teacher).

"I thought it would make no difference to the owner" (teacher).

"On the ground that the owner was to feed me, and candy was as cheap as anything else" (teacher).

VIII. The great majority of those who expressed an opinion concerning the best way of dealing with lawless acts of boyhood believed that reasoning is most effective. Their own treatment as boys varied from reasoning to extreme severity.

"Father punished me severely. I do not think it had a good effect" (teacher).

"Whipping I regarded as an outrage, and it made me insufferably rebellious" (teacher).

"My father was gloomy and severe when I committed acts that were in any degree public infringements. I consider reasoning better than punishment, but still better giving a boy such plays and active pursuits as will occupy his energy pleasantly" (teacher).

"My father was very harsh when I had done anything wrong. He told me how wicked I was and what a terrible place I would go to when I should die if I did such things. His method now seems to me to have been the result of a strict belief in original sin which must be whipped out or else driven out by horrible remorse. There was never any recognition of the fact that boys like excitement and do many things because they are normal boys. In his view every wrong that I did was done because I was wicked, not because I was a healthy growing boy. His method was decidedly bad" (teacher).

IX. Saying what was not true to escape punishment was common. Sometimes parents unintentionally drive a boy into falsehood.

"I was a persistent liar. My lying seems to me now to have been almost reflex, an immediate reaction to the stern questions of my father. He constantly frightened me into lying so that I finally came to tell falsehoods when there was no need for such protection" (teacher).

A professor in an eastern college writes,—

"I, and my playmates generally, had no regard for the truth when an untruth was likely to save us from punishment."

Few of those who replied have any regret for the unlawful acts of boyhood. They seem to think them a necessary element in good physical and mental development. The following replies are typical.

"They were wrong, but I should feel half sorry if I thought my boy could not do the same things" (teacher).

"Natural things for boys to do" (teacher).

"Such acts are simply the expression of a general egoistic attitude toward other people" (teacher).

"I think all boys must have a few experiences of that sort" (teacher).

"An outlet for surplus energy" (teacher).

"These unlawful acts are those which any boy of spirit and energy may do without their having any bad effect on the final formation of his character" (teacher).

"I look back upon my acts with some surprise that they were not worse" (teacher).

"They were an outlet for boyish activity, and if another outlet had been found they might not have happened" (teacher).

"My wonder is that I did not do more. I think they were the natural outburst of boyhood, and did not represent vicious tendencies. If there had not been the restraint and influence of a good home about me I can easily see that I might have gone much farther" (teacher).

"Harmless experiences often beneficial" (student).

"Something that every boy of spirit must go through" (student).

"I think I missed a valuable part of life in not doing more" (student).

"As the natural result of undue parental severity" (lawyer).

"I believe that they were incited by a desire for excitement that was given no satisfaction of a legitimate sort" (printer).

"They were caused by a love for adventure" (student).

Nearly all expressed the opinion that they would have continued to do such unlawful acts had their surroundings and home influences been less favorable.

"I am perfectly sure that if it had not been for the kind restraint of my surroundings I should have done much worse things than I did. I was under constant pressure to do the right thing, and I do not see how the majority of boys without such constant help and pressure from some source can fail to go wrong and stay wrong" (teacher).

"It is certain that environment to a large extent determines the actions of children, and even of adults. The savage does not regard cannibalism as wrong. Had I been brought up under the conditions to which savages are subjected I would probably have been a cannibal also. So, doubtless, with the lawful and unlawful acts of childhood. I acted in accord with my ideas of right and wrong, learned, without doubt, from others about me" (teacher).

The following is from a university professor:

"If my surroundings and influences had been different I think I might easily have become a criminal. I should have enjoyed making counterfeit money or planning swindling operations against banks."

"It was my surrounding influences and the feeling that if I went too far I would disgrace my family that kept me from becoming a criminal. I enjoyed everything of a criminal nature, but family pride saved me" (teacher).

The age at which boys come to think that laws and the recognized rules of right conduct should be voluntarily respected and obeyed is an interesting question for students of child-life. The great majority of those included in this study say that they did not reach this stage until after they were fifteen years old. About one-half were over sixteen, and not a few were seventeen years of age or older.

Biological studies seem to indicate that man passes through the physical development of the race. The rudimentary organs in man, variously estimated at from 100 to 125 or more, are proof of what the physical life of the race has been. Many of these atavistic characteristics disappear before birth, while others remain as constant reminders of man's humble origin. During about the fifth and sixth months the human foetus is covered

with "somewhat long dark hair" except on those places which are also bare in quadrumana.¹ The rudimentary hair on man has the characteristic arrangement of the hair on the same part of the body of quadrumanous animals. This is especially noticeable on the upper and lower arm of man where the hair turns toward the elbow, "a peculiarity which occurs nowhere else in the animal kingdom, with the exception of the anthropoid apes and a few American monkys, where it presumably has to do with arboreal habits."² The vermiform appendix, which is a functionally active part of the digestive canal of many herbivorous animals, has degenerated in man to a useless and dangerous blind projection of the alimentary canal. The pineal gland which once caused so much discussion is now thought by many to be the surviving degenerate center of a formerly functioning central eye.

As Dr. Chamberlain has shown,³ referring to Dr. Frank Baker, there is not the same advantageous arrangement of organs and structure in man as in quadrupeds. In many details they are evidently better suited to a quadrupedal position than an upright one. We are, therefore, led to assume either that equal skill was not employed in planning man's mechanical organization or that his change from the quadrupedal to an upright position is comparatively recent, and that there has not been sufficient time for the structural details to adapt themselves to the new conditions.

Recent study in race psychology and child study has led to the belief that there is the same recapitulation in the psychic life as in the physical. The child manifests many tendencies that are characteristic of savages. His fears,⁴ tendency to truancy and vagrancy,⁵ thieving,⁶ love for gaudy colors and ornamentation, anger,⁷ and feeling in the presence of nature and water,⁸ all point to the same conclusion. The preceding pages have given the result of an investigation in certain criminal tendencies of boyhood. It remains to inquire whether they also are not psychical reverberations of long past ages.

The belief that primitive man was an upright and peace-loving creature, who never thought of harming anybody until taught how by those who had outgrown their pristine virtue,

¹ Vide Wiedersheim's *Structure of Man*, p. 5, and Romanes's *Darwin and after Darwin*, Vol. I, p. 92.

² Darwin and after Darwin, Vol. I, p. 89.

³ *The Child; A Study in the Evolution of Man*, p. 234.

⁴ G. Stanley Hall: *Amer. Jour. of Psychology*, Vol. VIII, p. 157.

⁵ Kline: *Ibid.*, Vol. XI, p. 192, and *Ped. Sem.*, Vol. V, p. 381.

⁶ Dawson: *Amer. Jour. of Psychology*, Vol. XI, p. 195.

⁷ G. Stanley Hall: *Ibid.*, Vol. X, p. 516.

⁸ F. E. Bolton: *Ibid.*, Vol. X, p. 169, and Quantz, *Ibid.*, Vol. IX, p. 449.

has always been a delightful thought. This view has, however, been vigorously opposed by Brinton and others. "The morality of primitive savages is wholly animal. It is the right of the strongest in all its brutality. The few ethical ideas already gotten or in process of formation are simply the result of unconsciously contracted habits of action. Their actions are not controlled by their reason. The Australian language has no words for justice, error or crime."¹

In primitive society the moral law is limited to the relations between members of the same tribe. Any act is lawful and right when a stranger is concerned. He stands outside of the law. This is true not only of men of another race, but also of those of neighboring tribes. Against them any act of violence or treachery is justifiable.² In Polynesia hatred for their neighbors was so general that Cook says, "I could have exterminated the entire race had I followed the advice that I received. The inhabitants of all the villages and hamlets begged me to destroy their neighbors."³ Letourneau tells⁴ us that it was a recognition of this primitive ferocity that enabled the English missionaries to depopulate Society Islands at a single blow, by pitting one-half the population against the other half.

Tylor quotes⁵ from Schomburgk and Kops who have drawn pleasant pictures of the delightful home life, honesty and truthfulness of the Caribs and the Papuans of Dory "where they have not been corrupted by the vices of the white man." But he adds that "those who have fought with them call them monsters of ferocity and treachery. But cruelty and cunning in war seem to them right and praiseworthy."

"Among the Ahts of British Columbia, Sproat remarks that an article placed in an Indian's charge on his good faith is perfectly safe, yet thieving is a common vice where the property of other tribes or of white men is concerned."⁶

"Although the Africans within their own tribe-limits have strict rules of property, travellers describe how a Zulu war party, who have stealthily crept upon a distant village and massacred men, women, and children, will leave behind them the ransacked kraal flaring on the horizon and return with exulting hearts and loads of plunder."⁷

Morality has been a growth. Acts which in one age were thought to have their roots in the very foundation soil of virtue are stamped by following ages as grossly immoral.

The beginnings of morality are to be found in the instinctive feeling for self preservation. But strict individualism was too

¹ Letourneau's *L'Évolution de La Morale*, Paris, p. 186.

² *Vide Ibid.*, pp. 162-163.

³ *Ibid.*, p. 163.

⁴ *Vide Ibid.*, p. 163.

⁵ *Anthropology*, pp. 406-407.

⁶ *Ibid.*, p. 413.

⁷ *Ibid.*, p. 414.

severe a strain, and the gregarious instinct, common to animals and man, led to association for mutual aid and protection. These protective groups were at first small, but they grew as need for more organized assistance increased.

In the conflict between these social groups, Gumpłowicz maintains, is to be found the necessary condition of social organization. "The hostile contact of different social elements of unlike strength is the first condition for the creation of rights; the conditions established by force and accepted in weakness, if continued, become rightful."¹

Cannibalism was a common custom among primitive people, and its morality was beyond question. Man was looked upon by others as merely an animal. They not only killed and ate their enemies, but often women and infants. Later cannibalism was restricted to enemies, except in case of famine. Oldfield says that the aborigines of Australia regarded human flesh as a great delicacy, especially that of girls and young women. As for the men they were beasts of burden to be wounded or killed without hesitation.² It was a common practice among the Australians to eat infants. The mother might relieve her grief by sobs, if they were not too loud. She was somewhat appeased, however, on receiving her legal share, the child's head, and devoured it with evident feelings of sweet pain.⁴ The 'Guarayos' of South America pursued men much as they hunted wild beasts. They took them alive if possible that they might fatten them and keep them as reserve food.⁶

Cannibalism has been by no means limited to enemies captured in war. In New Zealand slaves were eaten, especially boys and girls who were cared for and fattened for that purpose.⁶ Ordinarily these human banquets were reserved for festival days as a mark of honor for guests. At other times they ate slaves to punish them for theft or some other offense.⁷ Cannibalism to them was perfectly natural and right. "Pourquoi ne pas manger des hommes? disaient ils à Marsden. Les grands poissons mangent les petits, quelquefois ceux de leur propre espèce. A leur tour, les petits poissons mangent des animalcules."⁸

Morality seems always to be a matter of conditions. That which circumstances so strongly press upon a people that resistance to it endangers existence is felt to be the right thing to do. Cannibalism was especially prevalent among those who lived where food was scarce, as on small islands. Among the

¹ Gumpłowicz: *Outlines of Sociology*, p. 121.

² *Vide* Letourneau's *L'Evolution de La Morale*, p. 81.

³ *Vide Ibid.*, p. 83.

⁴ *Vide Ibid.*, p. 84.

⁵ *Vide Ibid.*, p. 88.

⁶ *Vide Ibid.*, p. 92.

⁷ *Vide Ibid.*, p. 92.

⁸ *Ibid.*, p. 92.

Polynesians the stages of advance can be clearly traced. At first they ate one another recklessly, as we have found true of the New Zealanders. Afterwards, except in war, only the chiefs had this privilege. Still later the custom was preserved only in religious sacrifices as a symbolic form.¹

The growth of moral sentiment is further illustrated by those races that forbade woman to eat human flesh because it was regarded as such a delicacy that the men wished to reserve the privilege for themselves. An abhorrence of the practice gradually developed among the women of those races, which finally became so strong that they seem to have been originally endowed with the dislike. When, however, we trace this feeling back to its origin we find that they were just as fond of this food as were their lords whenever they were allowed to indulge. The New Zealand woman, for example, were as cannibalistic as the men, while among the inhabitants of some other islands of the same race and civilization as the New Zealanders the women, at first denied the dainty, finally came to look upon it with the keenest disgust.² The growth of the feeling of abhorrence for human flesh among these can be observed until, finally, the custom entirely disappears or remains in certain symbolic observances.

Primitive man had absolutely no regard for human life. "Il est sûr que, chez les hommes primitifs, le mépris de la vie humaine est sans limites. Au point de vue des sentiments d'altruisme, de solidarité, les races humaines très inférieures sont incomparablement au-dessous des animaux qu'on peut appeler civilisés, des abeilles et des fourmis, par exemple."³ The primitive aborigines of Australia used human fat for ointment, and were accustomed to bait their fish hooks with the fat of infants killed for that purpose.⁴

To kill enough enemies to make an honorable appearance before the gods was the earnest desire of many early peoples, and often they were overcome with sorrow at the thought of the comparatively small showing of their victims.⁵ The natives of New Caledonia felt that manhood consisted in persistent fighting, and were very bitter against those who, through authority or otherwise, prevented it. "We are no longer men," they said, "because we no longer fight one another."⁶ "The young Sioux Indian," likewise, till he had killed his man, was not allowed to stick the feather in his head-dress and have the title of brave or warrior; he could scarcely get a girl to marry him till he got the feather. So the young Dayak of Borneo

¹ *Vide Ibid.*, p. 97.

² *Vide Ibid.*, p. 98.

³ *Ibid.*, p. 102.

⁴ *Vide Ibid.*, p. 102.

⁵ *Vide Ibid.*, p. 104.

⁶ *Ibid.*, p. 104.

could not get a wife till he had taken a head, and it was thus with the skull or scalp which the Naga warrior of Asam had to bring home. . . . The trophy need not have been taken from an enemy, and might have been got by the blackest treachery, provided, only, that the victim were not of the slayer's own tribe. Yet these Sioux among themselves held manslaughter to be a crime unless in blood revenge; and the Dayaks punish murder."¹

Altruism arose as a sort of enlarged egoism, when individual selfishness no longer served its egoistic purpose. In many of his horrible customs primitive man occupied a level lower than that of a large number of the higher animals.² But even at this low stage of development a certain kind of social solidarity was necessary to prevent the purely selfish desires of each leading to the complete annihilation of the race. Self preservation, the strongest of all egoistic instincts, required the extension of self to all members of the tribe. Tribal interests were thus absorbed in self interest, not because of any moral ideas about the rights of others, but solely because each one's self-interests were better served. This enlargement of self to include the tribe must have found place very early in the life of primitive man, since before this no one could sleep in peace.

Affection between parents and offspring seems to be of comparatively recent origin. The primitive savage left his children to the fate that chance might bring, without any other training than that of the tribal customs and practices. As soon as the child was old enough to look out for himself, amid the simple conditions of life, the parents took no further interest in him.³ Women were illtreated, and love of the child for its mother was, in many races, unknown. In Polynesia the father encouraged the child to scorn and abuse its mother, and in Australia brutality toward parents was common.⁴

Referring to the Bedouins as a type of primitive races Gabriel Charms wrote, "to fall upon caravans of strangers, to drive off flocks, capture goods, kill and massacre the defenders, especially if they are the inhabitants of cities, such are the virtues which he rates highest. All these ignoble heroes of Bedouin legend we would send to the galleys as highway robbers."⁵

"The astonishment which I felt, as I first saw a troop of Terra-del-Fuegians on a wild and rugged coast, I shall never forget; for the thought flashed through my mind at once: Thus were our forefathers. These men were absolutely naked of

¹ Tylor's *Anthropology*, p. 412.

² *Vide* Letourneau's *L'Evolution de La Morale*, p. 164.

³ *Vide Ibid.*, p. 165.

⁴ *Vide Ibid.*, p. 166.

⁵ Quoted by Gumpłowicz in *Outlines of Sociology*, p. 114.

clothing, and covered only with paint. Their long hair was twisted together, their mouths bedrived from excitement, and their expression wild, amazed and suspicious. They possessed scarcely any skill at all, and lived like wild beasts on whatever they could catch. They had no government, and no mercy toward those not of their own race."¹

"L'homme, avant de troques avec ses semblables, se procura, tout par lui-même, au moyen de la chasse, de la pêche, du vol, etc. En effet, comme l'a remarqué M. Muirhead, *emere* en latin n'avait pas, à l'origine, la valeur d'*acheter avec de l'argent*; mais seulement celui de *prendre, acquérir, recevoir*."²

Of the ancient Germans Cæsar said, "Robberies beyond the bounds of each community have no infamy, but are commended as a means of exercising youth and diminishing sloth."³

"Take a primitive savage, a gregarious human being; what are his moral ideas? He is bound to his fellows by the natural feeling of connection. They help him in his need; to hold to them, help them and stand by them loyally is one of his moral ideas. But strangers from another horde waylay them, try to get their property, invade their hunting ground, slay them occasionally, and steal them; therefore to kill these strangers and rob them is another of his moral ideas."⁴

The same contradiction between ideas exists in the mind of the child as existed in the race at different periods. There has never been a sudden complete change in the ideas and sentiments of the race. The old persists and overlaps the new. This brings with it contradiction. So we find the ideas and sentiments springing from the belief in the right of property by seizure existing in the minds of men side by side with those new ideas which came with the growing belief that ownership rests solely on purchase or exchange. The illogical is thus as truly a historical force as the logical.⁵ This persistence of racial characteristics and their exceedingly slow elimination is an illustration of Ferrero's law of least effort.⁶ Immediate organic or psychic change would involve disintegration, an exaggerated fatigue, from which recovery would be difficult or impossible. Change should always come slowly that disintegration may not exceed integration.

The ethical life of children resembles that of primitive man

¹ Quoted by Gumpowicz from Darwin's *Descent of Man*, Vol. II, p. 356.

² Ferrero: *Les Lois Psychologiques du Symbolisme*, p. 179.

³ Tylor: *Anthropology*, p. 414.

⁴ Gumpowicz: *Outlines of Sociology*, p. 171.

⁵ *Vide* Ferrero: *Les Lois Psychologiques du Symbolisme*, p. 184.

⁶ *Vide Ibid.*, pp. 18-22.

in the absence of a clearly defined moral obligation. Both act largely on the impulse of the moment. In neither case is the conscience organized so as to be greatly influenced by the welfare of others to the apparent detriment of self, or by a future advantage gained by present self-denial.

"One often hears the English schoolboy described as a savage, and after sixteen years' experience of the Andamanese, I find that in many ways they closely resemble the average lower-class English country schoolboy."¹ "Primitive peoples under the exact rule of our culture, young country recruits in the barracks, and school children have much in common."²

Le Bon has shown us how, in a crowd, the older racial tendencies come to the surface and exert the controlling influence over the actions of adults. At such a time criminal acts are frequent "because our savage destructive instincts are the inheritance left dormant in all of us from the primitive ages."³ "Men the most unlike in the matter of their intelligence possess instincts, passions and feelings that are very similar."⁴ Isolated, man "may be a cultivated individual; in a crowd, he is a barbarian—that is a creature acting by instinct."⁵ Under these conditions inhibitions, the result of ages of culture, are temporarily paralyzed and the man becomes again a child, for it is just in respect of these inhibitions that the moral life of the civilized adult differs from that of children.

The child also has mental states similar to those of the savage "in the phenomena of delusions and illusions, fads and fancies, questionings and dogmatizings, nonsense-talk, language-play, verbigeration, etc."⁶ "Savages and children are alike again in their tendency to 'receive all sorts of ideas, of entirely heterogeneous origins, without thinking of making them harmonize one with another in the least.'"⁷ "Children," again, "'divert themselves with mere words, rhyming them, singing them, careless of their nonsensicalness. They invent words through very pleasure of verbigerating.'"⁸ In like manner "'races in their childhood, in the new delight of speech neologise without regard to use or necessity, impoverishing their language by making it plethoric of synonyms.'"⁹ Letourneau, also, characterizes savages as almost infantile in many ways. "The most redoubtable warriors would frequently burst into tears at the slightest provocation."⁹

Primitive races and children are especially susceptible to suggestion. It is also this readiness for suggestion that exerts the

¹ Portman: *Vide* Chamberlain's, *The Child*, p. 296.

² Chamberlain: *The Child*, p. 298.

³ *The Crowd*, p. 64.

⁴ *Ibid.*, p. 31.

⁵ *Ibid.*, p. 36.

⁶ Chamberlain: *The Child*, p. 301.

⁷ *Ibid.*, p. 303.

⁸ Tanzi: *Vide Ibid.*, p. 302.

⁹ *L'Évolution de La Morale*, p. 168.

greatest influence on the crowd, causing it to do things which the members as individuals would scorn.¹ Here, again, the higher and later acquired intellectual life with its inhibitions yields to the lower and older racial passions and impulses of primitive man and the cultured person becomes again the savage. This primitive characteristic of openness to suggestion and auto-suggestion, so noticeable in children, by which an idea immediately goes out in action, brings them into close relation to the savage, and accounts for much of their so-called wickedness.

Race instincts are amenable to primitive custom, and not to the laws of civilization. Hence it is that children so often feel independent of law. "It is certain that to many youths the wish to make sport of justice and to compel the authorities to busy themselves with them, leads by way of boasting to an irresistible tendency to evil doing."² Stealing is one of the most common ways in which race survivals face modern law. Ferriani is of the opinion that at "from eight to fourteen years the child is almost always a thief."³

The race tendencies of primitive man cannot properly be classified under morality. They are neither moral nor immoral. They are simply stages in evolution in which man finds himself, and to the conditions of which all his nature strives to conform. Ethics involves a conception of social relations which sees beyond cosmic processes and seeks to control them for moral ends.⁴ The imitation of the cosmic process by man, before he has come to a realization of social relations, can no more be judged by an ethical standard than can the cosmic process itself.⁵ In the past many acts which are now classed as criminal were an aid to social evolution. The law of blood vengeance gave a decided tendency toward law and order during a period in which external restraints were few or altogether wanting and individual responsibility to society was unknown. The law of "an eye for an eye and a tooth for a tooth" as well as war have served a useful purpose in uniting social groups, and in teaching them the necessity of co-operation.⁶ This service, however, cannot rightly be called ethical since it was rendered blindly, without thought of moral ends.

Adults read their ideas of morality into children's acts, and then catalogue them as right or wrong, while in reality they

¹*Vide* Le Bon: The Crowd, p. 34.

²Maironi, quoted in Chamberlain's The Child, p. 368.

³Chamberlain's The Child, p. 373.

⁴*Vide* Huxley: Evolution and Ethics and other Essays, p. 81.

⁵*Vide* *Ibid.*, p. 83.

⁶*Vide* Tylor's Anthropology, p. 432.

are often neither. At the most, right and wrong with young children usually resolves itself into what is permitted or forbidden (Osborn),¹ and disobedience is not wrong if no bad results follow (Miss Schallenberger).²

The so-called criminal instincts of children are the racial survivals of acts that in past ages fitted their possessors to survive. They were not merely right, but necessary at that time, and they were right because they were necessary and because they stood for the best of which primitive man could conceive.

This period of savagery, or semi-criminality, is normal for all healthy boys. Those whose surroundings are favorable to a life of crime continue in it, finally to end in the reform school, and still later, probably, in the penitentiary, while those of better surroundings pass through it without permanent moral injury, and perhaps, indeed, with a stronger character and a keener insight into human nature. "Crime is largely not an atavism, but the result of human social relations and criminal anthropology forms but one chapter in the anthropology of degeneracy."³ "For Orchansky 'crime is the result of bad social hygiene.' In other words, it is 'not that bad people create crime, but that bad conditions make criminals out of the weak and the ignorant.'"⁴ "At the most, many of the so-called 'criminal characteristics' of children are psychopathic dispositions, for the further development of which on the way to crime and criminal phenomena opportunity and social *milieu* are the chief breeding-ground."⁵ "Are there good and bad children?" asks Berenini, Italian deputy and lawyer, and his own answer runs 'no! There are individual, sanguine, choleric, mild, active, quiet, etc., temperaments. The leadership of moral behavior, however, is lacking, for it is the evidence of a gradually developing factor not yet attained—social life. To the child, then, all things are possible, good and bad, and the thousand and one intervening stages; only dispositions and tendencies are present, and the results are whatever comes of the environment, or of education, which is merely the substitution of one *milieu* for another.'"⁶

Imitation is a fundamental racial instinct.⁷ All race instincts are a kind of organic adaptation or imitation. So strong a hold has this tendency upon us that, as Professor Baldwin has

¹ *Vide* Chamberlain's *The Child*, p. 363.

² *Vide Ibid.*, p. 310.

³ Chamberlain's *The Child*, p. 358.

⁴ *Ibid.*, p. 359.

⁵ *Ibid.*, p. 361.

⁶ *Ibid.*, p. 393.

⁷ *Vide* Baldwin : *Mental Development*, p. 295.

shown, "a child may do and keep on doing imitations which cause him pain."¹

Here, again, the life of the child and that of the savage are closely connected. The strong influence that imitation exerts on primitive peoples is illustrated by their various taboos. "At the beginnings of child life it is the parents and the immediate *milieu* who exert the taboo, and imitation is made to begin with life itself."² The importance of this instinct in mental development has not yet been appreciated. Children unconsciously grow into the customs, modes of action and thought of those among whom they live. "Suggestion and imitation, moral infection and contamination are very powerful factors in the production of juvenile crime."³ The survival of the fittest plays its part in determining the nature of each little social group just as truly as in the larger society, and here, as elsewhere, the 'fittest' is he who best meets the needs that confront him. The boy who lives among those who lie and steal is a little social outcast if he does not do the same. Here the natural race tendencies are re-enforced by social necessity. He may survive in the sense of continuing to live, and he probably will, but he will not survive in the sense of being "somebody" if he do not adapt himself to the habits that pass for the 'thing to do' among his associates. "No Greek was ever more completely ostracised by his fellows than is to-day the child who is *persona non grata* to his fellows. Street gangs can banish as effectively as ever did a Hellenic city."⁴ Fortunately or unfortunately the native instinct to imitate comes to the boy's aid, and he does these things without once raising the question of right or wrong, and so social imitation is strengthened by all the force of race instinct.

The effect of social suggestion and imitation in reforming boys is shown in the George Junior Republic. "The most hopeful cases are the leaders of the gangs of toughs, the despair of the city police. Their crimes are more often the natural expression in their environment of their love of adventure and excitement. Given the avenues and ambitions of the Republic, and they become the ablest chiefs of police, lawyers, students, and workers."⁵ "In the majority of cases those who now are of the highest character were the most inveterate convicts during their early citizenship."⁶

¹ *Ibid.*, p. 298.

² Chamberlain's *The Child*, p. 312.

³ *Ibid.*, p. 371.

⁴ Chamberlain: *The Child*, p. 312.

⁵ John R. Commons, in *American Jour. of Sociology*, Vol. III, p. 439.

⁶ *Ibid.*, p. 438.

Alfred Russel Wallace says,¹ "there are now near five hundred people in Dobbo, of various races, all met in this remote corner of the East, as they express it, 'to look for their fortune;' to get money any way they can. They are most of them people who have the very worst reputation for honesty as well as every other form of morality,—Chinese, Bugis, Ceramese, and half-caste Javanese, with a sprinkling of half wild Papuans from Timor, Babber, and other islands,—yet all goes on as yet very quietly. This motley, ignorant, bloodthirsty, thievish population live here without the shadow of a government, with no police, no courts, and no lawyers; yet they do not cut each other's throats, do not plunder each other day and night, do not fall into the anarchy such a state of things might be supposed to lead to. It is very extraordinary! . . . Trade is the magic that keeps all at peace, and unites these discordant elements into a well-behaved community."

"One might also refer to the Maoris of New Zealand, who, at the beginning of the present century were fierce cannibals, but have now six representatives in the New Zealand legislature, and evidence abundant powers of adaptation and improvement."² Of these same people Benjamin Kidd tells³ us that, "though they are slowly disappearing before the race of higher social efficiency with which they have come into contact, they do not appear to show any *intellectual* incapacity for assimilating European ideas."

"If we find a community of some 15,000 people wealthy and prosperous, living harmoniously together, having few quarrels, no murders, and yet no Courts of Law and no obvious punishments for breach of law, we may feel assured that they have some system of ethics which holds them together and makes them live like a band of brothers. Such are the Navahos of New Mexico. For a thief no punishment exists—'if found with the stolen property he is expected to return it, that is all.' With the Navahos the time is evidently not long gone by when with them, as among the Spartans, adroit theft was deemed honorable."⁴ It looks as if Le Bon was right when he wrote "that all mental constitutions contain possibilities of character which may be manifested in consequence of a sudden change of environment."⁵

In the light of recent studies in suggestion most of the speculations regarding heredity become valueless. It is impossible

¹ The Malay Archipelago, p. 439.

² Chamberlain: The Child, p. 297.

³ Social Evolution, p. 293.

⁴ Quoted from Washington Matthews in Chamberlain's The Child, p. 388.

⁵ The Crowd, p. 28.

to say where the influence of heredity ends and that of social suggestion begins. Everything that has been ascribed to heredity may be the result of social suggestion acquired through imitation. It is difficult to rid ourselves of an idea that has for a long time strongly influenced our thought. We have believed the juvenile criminal different from other boys, and have thought to find the cause of this difference in his ancestry. If his parents or grandparents showed criminal characteristics the tendency in the children has been accounted for; but this loses sight of an important fact that has been generally ignored in such discussions, and its recognition largely destroys the value of arguments based upon such investigations. *Criminals make their own environment and that of their children.* Dugdale called attention to this when he said¹ that "the tendency of heredity is to produce an environment which perpetuates heredity." Again, the same writer tells us that "in the 'Jukes' it was shown that heredity depends upon the permanence of the environment, and that a change in the environment may produce an entire change in the career, which, in the course of greater or less length of time, according to varying circumstances, will produce an actual change in the character of the individual."²

In the study³ of the boys in the Wisconsin reformatory, by the writer, the same condition was noticeable. There was an entire absence in the boys' surroundings of everything that could give them ideas of any other kind of life than that which they led, and suggestive imitation, aided by race instincts, would account for their acts unaided by inherited family tendencies.

"The children of the criminal quarter of the city of Lyons, in France, have been made the subject of a special study by Raux. Only 13 per cent. of these young criminals seem to have been bad in spite of good influences and moral education, the enormous rôle of social and family environment being revealed by the fact that 87 per cent. seem to have been led into crime through the bad character, weakness, cruelty, indifference, etc., of their parents, though doubtless many of these must have been hereditarily tainted and infected."⁴

There can hardly be any doubt that there is a time in the life of every normal boy when primitive impulses, the reverberation of savage life, carry him on, with almost resistless fury, toward a life of crime. When to these native impulses there is joined an environment favorable to crime there can be little hope for successful resistance.

¹ The Jukes, p. 66.

² *Ibid.*, p. 113.

³ Am. Physical Educational Review, Sept., 1898.

⁴ Chamberlain: The Child, p. 375.

There are conditions which may cause some to omit this period in their development. Boys put early into positions of responsibility may lose¹ their boyhood and pass from childhood immediately to manhood. Parents sometimes so win the confidence of their children through companionship that nothing is done of which they are ignorant. They are the confidants of their sons, and a manly character is formed without the loss of those advantages that come with boyish sports. These cases are, however, comparatively rare. More commonly those who do not engage in such acts refrain through fear rather than from any high motive. Doing such things does not indicate a depraved nature. It rather shows an independent, active, aggressive character which, rightly developed, leads to manly courage. I do not mean to say that all who engage in semi-criminal acts during boyhood will be valuable men in society. That depends upon the final turn which is given to the independent strength in them that courage to do these things shows. Mental and moral development is the result of exceedingly complex processes, and we are only beginning to learn some of the most evident elements in it. We know that native tendencies cannot be whipped out of boys, and that these impulses should be turned into other lines of activity which will satisfy the needs of boyish instincts, without robbing the child of the desire to act and the resulting mental strength and elasticity. "The secret of preserving the good, the true office of education, lies 'not in sermons, harangues or idle talk, but in pure air, healthy food, good corporeal and mental exercise, the never-failing presence and example of moral customs and habits—the harmony of healthy social life.'"² The problem is largely an individual one. The personal equation of boys plays a too important part in their development to make set rules possible, but the results gotten in the George Junior Republic, to which I have already referred, show the way.

Reversion is along the line of least resistance. It is easy to fall back into a less intellectual and more instinctive life, "to be less excellent than you might have been."³ The stages through which the race has passed are strongly entrenched in the organic and psychic life, and for this reason their elimination is a slow process. "If for any reason, therefore, development is arrested at a point corresponding to one of these lower stages, the qualities characterizing the latter will persist."⁴ This is what happened to the boys in the reformatory.

¹Vide Swift, *Journal of Pedagogy*, Vol. XII, p. 299, and Baldwin's *Mental Development*, p. 20, ff.

²Chamberlain's *The Child*, p. 393.

³Atlantic Monthly, May, 1900, p. 644.

⁴Dawson: *Amer. Jour. of Psychology*, Vol. XI, p. 189.

As I have said elsewhere, "morality is a habit long before it is a matter of principle."¹ Because of his greater dependence on the good will of his associates, the child, even more than the adult, must accommodate himself to his surroundings; he must adapt himself to the social environment in which he lives. He has not the developed will which will enable him to act independently of his surroundings. We act according to the content of consciousness and that content in children, inhibitions being to a large extent unformed, is mainly made up of objective social relationships present at the time.

It is a fundamental law of mental no less than of physical growth that the new tends to conform to the old. Nervous impulses stimulated by new experiences follow the pathways of those older more firmly fixed impulses to which the new most readily adapts itself. Now, there are no pathways so deeply impressed in the organism as those of race instincts. It is because of this that semi-criminal acts fill so large a part of boy-life. New experiences follow the old instinctive race paths, and they will continue to do this for the accomplishment of the same race purpose, though the purpose may no longer be serviceable, unless some other interest be found in the realization of which this nerve energy may be absorbed, without being required to immediately leave its old line of discharge. This is not so much a substitution² of one process for another as it is the substitution of a new purpose for the old one in the same process. It is a recognition of the right of race instincts to exist. Instead of antagonizing them we use them in developing the child. This puts meaning into the expression, so often heard but so little understood, that we should lead children instead of driving them.

¹ Wis. Jour. of Education, Vol. XXIX, p. 184. See also Baldwin's *Social and Ethical Interpretations*, p. 55.

² *Vide* Baldwin: *Mental Development*, p. 257.

CONFESSIONS OF A PSYCHOLOGIST.

PART I.

By G. STANLEY HALL.

In 1880 I undertook, with a temerity which now fills me with amazement, to represent all the departments I was able in the field of psychology and pedagogy, which was the title of my chair, at the Johns Hopkins University. As there had previously been no stated work there, save only that of occasional lectures in the whole field, and special courses by Professor Geo. S. Morris, the first American scholar to attain eminence in the history of philosophy, and Charles S. Pierce, one of the most original and to me inspiring masters of those who know, I had *carte-blanc* in a free domain, and it seemed best at first to make some sacrifice of depth and thoroughness to range and extent, and to lecture on the general history of philosophy and ethics from the Greeks down to the close of German idealism, in which I had years before served my academic apprenticeship of three years of study in Europe; to amplify my former Harvard courses on contemporary philosophy; to cover the whole field of psychology, old and new, from a second three years' study of which latter in Germany I had just returned; to give a weekly course in the history of education and another in the applications of philosophy and psychology to it. In addition to this, a few years later, circumstances beyond my control, made it necessary for me to become the responsible head at the University of the Baltimore City Hospital for the Insane, at Bay View, and to appoint the head of it from among the medical attendants upon my lectures, and to report upon the work, to visit and conduct weekly clinics in the wards a part of the year. The traditions and spirit of the University then strongly inclined to the lecture system almost exclusively, and I found myself compelled to devote my entire time and energy, especially for the first few years, to as diligent a cram as perhaps any one ever undertook. It was during this period that I gradually drifted to the invention, and more often the adoption, upon suggestions from others of methods to which I have steadfastly adhered for twenty years, the description of which, in the light of their accumulated results, may be helpful to instructors younger than myself, although some, if not most of them, may be so only in the way of warning.

One of the first things I did was to purchase a number of blank books, 9 x 14 inches, and about one inch thick, labeling them respectively, pre-Socratic, Plato, Aristotle, Stoic, Patristic, Scholasticism, German idealism, English philosophy, Evolution, Pessimism, etc. Psychology was represented by one book for each of the senses and one each for the psychophysic law, association, memory, attention, will, emotions, etc., and one for myth, custom and belief, one for the psychology of religion, and two for the psychology of speech. Education was blocked off into periods, each with its volume. One book was given to the education of defectives; in morbid psychology, — mania, illusions, melancholia, epilepsy, and half a dozen more, were represented by one each, with two books for brain anatomy, one for hypnotism and allied phenomena, two for criminology, one each for child study and animal instinct. Thus in all, over 30 volumes were gradually set apart. My entire course revolved every three years, with at first six and later eight or ten lectures a week. Preparation for each course was made by diligently reading as many of the best authors as I could, and briefly digesting their content with all salient characteristic phrases, and cutting and pasting in the contents of such lecture note books and manuscript as I had accumulated in my previous teaching. Alas! for those who heard me during the first triennium (Jastrow, Dewey, Cattell, Sanford, Donaldson, Hyslop, Hodge, Patrick, Burnham, and others who have since attained an eminence and made contributions of perhaps greater value than those of any American up to that time, and from each of whom I have learned vastly more than they ever did from me), when I had to make such compromise as I was able between triangulating the vast mental spaces here so crudely blocked out, and going into details at the points I knew best beforehand or could study most *ad eundem*. These years were one long stretch of cramming and condensation, with digestion and active and thorough co-ordination left to do the best they could under the circumstances. When my pupils of that date speak pleasantly to me of this work, my own best judgment of it is that the most charitable view possible is that it was suggestive, a kind of *vox clamantis in deserto* which may have served to first point some of them to the great authors, topics and their relations in a then novel field. I never dared to hold my classes closely to a systematic quiz, because I felt the lectures were incomplete and perhaps had an instinct that a thorough revision of them would reveal their inadequacy to the class in a painful way. A very few of the courses into which it was all broken up, were repeated each year, some every two, but more every three years, as that was the regular

Ph. D. course, and some were only given at longer intervals, so that my own interests and tastes had reasonable scope. In some topics, in this absurdly vast field, where a dozen or two professors could well divide the work between them, as indeed is done in the best foreign universities, I did avowedly little but condense a few leading authors, while in others worked my way by frequent repetition to a degree of exhaustiveness. The leading idea has been that my own efforts at original contributions and those of my pupils should, if possible, be based upon some knowledge of all the best that has been said upon the subjects in the authorities and languages I could command, in order that effort be not wasted in doing over again work that had been already better done elsewhere. The source of everything was always given in the effort to generate in each pupil sufficient interest to go to the sources in at least some topic for himself. On the whole, then, the chief merit of this work of years is measured almost solely by my diligence as a reader, and by my success in compiling and condensing, and arousing interest. I could only strive for suggestiveness, exhaustiveness under such conditions was impossible.

As the courses were successively repeated, the reading of each year topic by topic was condensed and entered in the proper book, most of this work being done in preparation for each lecture in addition to freshening up the strata of preceding years. Gradually I came to arrange such books and monographs, as I could purchase, on my shelves in the order in which they were treated in the lecture books, so that sometimes after a three years interval I could look ahead at the beginning of the year to so many feet of printed matter that must be at least glanced at during the course. Gradually I came also to adding references to authorities that came more incidentally to my knowledge in the Libraries of the University and the Peabody Institute near by, and worked in new books ordered in the summer for next year's work from the library appropriation to my department, which was about \$1,000 per year at first; and when the time came I did my often wretched best to grapple with these, always with great and growing disparity between the topics I was most and those I was least interested in.

It was an important epoch in this work, when in November, 1887, I was able to start the *American Journal of Psychology*, and to assign a very large space in it to digests and reviews of select current literature in the field as was done at first. For the first few numbers I undertook to do most of this work myself, as several hundred pages in the early numbers testify. Soon, however, I had to farm this out where I could to students in my seminary and often to fellow professors elsewhere. This

I did with the request that most of every book notice should be devoted to a concise and salient presentation of the author's view, using his own most striking phrases if possible, and that criticisms be reserved to the last sentences or a paragraph or two. In this way for nearly fifteen years, hundreds of special books and monographs have been summarized and this material has played a growing rôle in the lecture books. Upon the appearance of each quarterly number of the *Journal*, as later of the *Pedagogical Seminary*, two numbers have always been destroyed by cutting out each important review and placing it in its due position in the proper book. I have also occasionally sacrificed copies of other periodicals in this way, but most book reviews persistently tend to be critical rather than expository and thus to leave the reader informed of the defects or errors but not of the positive contribution so much more important, and hence are in only a rather restricted proportion of cases really serviceable for this purpose.

At the present time some of these lecture volumes, which generally accompany me to and from the class room and have often been a subject of good humored ridicule and caricature on the part of students and even, I regret to say, colleagues, are worn, dog-eared, dirty, a single and often many leaves have been cut out and pasted into other places or books, occasionally large newspaper clippings or even pamphlets are stuck in, some have grown to nearly thrice their original dimensions and others have shrunk to half. I once succeeded in insuring them for \$4,000, fearing that my function in life would be gone if they were burned, and later I bought a safe for the choicest of them. Conscious as I am of the ridiculous side of it, the best of these represent years of drudgery, much of which would be lost if they perished. It is, therefore, with a curiously great degree of satisfaction that I occasionally reach the goal held in view from the first and do digest or sugar off the positive content of a volume, or a part of it, together with such contributions as I sometimes think I am able to make to the subject, into a few chapters for one of my forthcoming publications. The satisfaction with which I have thus a few times seen the last handful of leaves of one of these old books crackle and crisp in my fireplace, feeling that the soul of it was now sublimated and ready for the paper immortality of printer's ink, constitutes a unique sensation complex which I have never seen described, and which my psychology is not able to adequately characterize. If this process can ever be consummated for all of my favorite topics, my heart will sing its *nunc dimittis* and I shall attain a euthanasia rarely vouchsafed to mortal man. At present, in the early fifties, I am wondering whether if Emerson is right that a task is a life preserver, this hope

and ideal, which has lately grown very strong and dominant, may not work some kind of mind cure mystery that may be able to insure me a green and happy old age in its realization, although to complete the entire scheme would probably carry me far past the centenary mark and be measured by more feet of volumes all a-row on a shelf than any of the most prolific writers past or present in philosophy ever attained. To take all this vast field of knowledge for one's province in the superficial way is removed by an interval, which only the imagination can span, from writing anything worth any one's while to read, in at the very least the great majority of its departments.

I am persuaded that for a young man it is far more conducive to continuous mental development, at least in this field, to have at first a wide acreage both for breadth of view and that specialization may be gradual and natural so as to fit individual tastes and capacities. A new department in a new university with abundant means and with the ideals then prevalent there made the work an inspiration. For some years this was the only chair centering about empirical and laboratory psychology in the country, and whatever influence it had upon the remarkable development that line of work has since had in this country, I shall always ascribe to the prophetic sagacity of President Gilman, the greatest of what may be called *inside* university presidents, who organize academic work from within outward, adjusting all to the present views of science and learning, a kind of service quite distinct from that of the organizer from the outside, who mediates between the university and the public and is dominated in all he says and does by the quest of dollars and students. Despite the imperfection of my work he saw that it was in a promising new field and apologized for my shortcomings to my colleagues, who saw them and lacked his insight and foresight, and he became the patron and spiritual father, not merely of my own work and the author of my humble career, but of all the influences that the first establishment of such a chair, in a great institution which has set more and better fashions and opened more brighter possibilities in higher education than any one other since it was established, could irradiate and re-enforce.

I have also long been convinced that the *mediæval* method of lecturing is unpedagogic and ought to be obsolete. It strove to present with a systemization too ostentatious a view of a subject so complete that reading was almost unnecessary. Students recorded with great assiduity the words of the master's as dictations, who often interspersed sentences and paragraphs that must be taken down literally as distinct from the "Expositorazione" with more spontaneous impromptu illustrations

of which little or no note was made on the one hand, and the more diffuse but stated and prepared matter which was to be condensed by the students. The ideal of the best students was to have a full and beautiful *Heft* or body of notes for his own future reference and for the use, perhaps for pay, of his less diligent classmates. They made little or no use of libraries, but attended lectures sometimes many hours a day. This method naturally tended to produce schools of disciples; the professor printed only late in life and when he was practically done lecturing upon his subject, if his matter was not then obsolete. While the practice differed in this respect greatly in different departments, it was often thought very detrimental to the number of auditors and therefore to the professor's pay, which depended largely upon this source, to print, because there was no other way of getting at the ideas of a famous man than to hear his lectures. Reputations grew great in the perfervid minds of youth in this feudal if it be not better called tribal stage of development, and learning was more esoteric and the monopoly of universities. This was the direct continuation of the method of the porch, the grove and the academy, and it certainly has many distinct pedagogical advantages. Knowledge that enters through the far older and wider gate of the ear seems to sink deeper than that which comes through the upstart source of reading. It gave the great masters a moral and therefore disciplinary eminence and developed the instinct of fealty and discipleship in youth. Books were not sealed to the student laity as was the Bible of old; but the very bad library methods, the expense of purchasing, and the greater self discipline involved in a student's forcing himself to sit in his room and read alone rather than to sit socially with others and have knowledge poured in tended toward giving the professorate not a little of the oracular quality, which the priesthood had possessed as the exclusive interpreters of "The Book." Thus printing for the German student up to recent times and indeed often now remained uninvented, and he lived for the most part in a pre-Gutenberg stage of existence.

The very mannerisms and forms with which the professors formerly hedged themselves about added to the lustre of the halo which each student saw about the head of his favorite master. The beadle preceded the instructor and ushered him with a sometimes more or less elaborate ceremonial into his room, carried his manuscript and laid it before him, with a glass of water, sometimes calling *silentia* and acting as a kind of sergeant-at-arms until the lecture was fairly under way. The professor wore his academic robe, the lustre or number of the hues of which indicated his position. He stood or sat on a high dais, usually plain but sometimes much carved and

decorated ; all rose to salute him when he entered and sat only when he bowed permission, perhaps applauded and always rose to let him retire first. All this developed on the background of the methods of mediaeval university government, where a student was exempt from all other authority, even in the case of crime, and arrested, fined and imprisoned by the academic court alone, and all tended to develop reverence and respect on the part of the student and often an hypertrophied *amour propre* on the part of the professor. This, of course, was especially true in the departments first of theology and later of philosophy, and all have heard the well worn anecdotes of professors who announced with an air of slightly veiled omniscience, that they would the next day or later demonstrate the existence of God, as though he had been waiting all these years for having the due honor of this proof conferred upon him ; of philosophers who established the reality of the world, as though it depended upon their ratiocination, who refuted or established the many "isms" and "ologies" which abound in the history of speculation, as if they were Sir Oracle or the mouthpiece for the revelation of a pantheistic or other god ; of those who claim to ignore all other authors and to lecture only upon their own discoveries, and of the more recent epistemologists who adjudicate on high ground between science and religion, issue its credentials and letters patent now to one and now to the other, classify all departments of human knowledge by triangulating vast mental spaces real or assumed, decide how far the senses, the laboratory and science generally can be accepted or give logical grounds for holding what every sane mind has accepted long before on the sounder basis of instinct or common sense.

In the mode of delivery many European, and especially German professors do wonders, both good and bad. I have heard an eminent instructor at Heidelberg, who must have elaborately cultivated every oratorical grace within his reach. He stood, gestured and articulated with finished grace, and often with a fervor, pathos and dramatic force, which sometimes so entranced his hearers and swept them away that notes were forgotten and applause punctuated his well rounded periods. One had three steps behind his Katheder ; at emphatic phrases he would mount one, and with those he most emphasized he rose to the top, seeming to grow tall and expand as well as to come nearer his hearers as he leaned over with the thoughts that surged up and sank back in mighty tides within his soul. It was a singular and unique effect which may be commended to Delsartean and other teachers of elocution. Occasionally professors of literature read either in German, Greek, French and other languages, select extracts with a style that is very effec-

tive. French professors at one time especially cultivated these arts and took lessons in voice building, elocution and rhetoric from the great professors at the Paris school of dramatic art.

Generally, however, all these devices, especially in Germany, are utterly neglected and the clear eyed, cold muse of reason alone presides. Some by accident or perhaps design give free vent to many a personal idiosyncrasy and a rich and rare collection of professorial automatisms might easily be gathered as basis for an interesting study. A very eminent professor of theology, now dead, habitually came to his classroom with his pants in his boots, at least on one leg, and occasionally forgot collar, necktie and his morning ablutions. His long locks were dishevelled and often hung over his face, and he automatically threw back his long front lock with a curious toss of his head or stroked it behind his ear scores of times an hour. Another could not lecture without fingering his pencil in a very characteristic way and is said to have adjourned his class, when he had forgotten it and no one offered him one. I once heard a Berlin professor, who almost ran into the room, began his lecture with the usual *Meine Herrn* before he had got to the desk, and lectured with a rapidity that almost amounted to *Gedankenflucht*, and which the usual protests of his students by scraping their feet, which is generally so respected, could not retard. A Leipzig professor, I heard, habitually gazed out of the window to a peculiar knot in a tree and was upset when it was felled. Another always turned over his leaves back and forth as if vainly trying to find his place, lecturing all the while with great continuity and force. Another lowered his voice at the important points, so that it was barely audible, and there was a great rush for front seats. I have seen students tiptoe close to the desk to get their ears a few yards nearer his mouth that no priceless syllable be lost. One who was lame and was wheeled in and lifted on to a curious kind of saddle, would sway about left and right, until we feared he would fall although he clung to his desk, as if taking an hour of gymnastics. Another stood rigid and immovable and spoke in a tone of almost absolute monotony, not so much like a martinet as an automaton, suggesting the machine minister with a revival stop, funeral stop, etc. Another sank down in his chair with an absorbed, abstracted air, looking toward his feet, and soliloquized smiling, sometimes chuckling, or bringing his fist down with a heavy blow annihilating pessimists or humanists as if fighting flies. Not infrequently he ignored the bell and had to be reminded by a growing noise of feet that the hour was up, when he would suddenly come to himself as from a trance and almost literally scoot from the room. Generally lectures are carefully prepared, perhaps written, but a distin-

guished epistemologist in Leipzig was fond of taking his text from a bird on a tree without, some salient object or act before him, and developed the mysteries of the subjectivity of all knowledge, taking fire as he went along like the wheels of Jove's chariot. He began with a thin falsetto baby voice and ended in stentorian. A long list of curious personal peculiarities and automatisms, which have slowly developed in connection with the psycho-neural tension of thought in the lecture room, might be enumerated, and some professors actually seemed to take a degree of satisfaction in the good humored marks of appreciation and even ridicule of their students, perhaps thinking these gave saliency to their individuality or made the subject matter stand out because of these labels of idiosyncrasies of which some had such a repertory. The number of difficulties and distractions of this kind, which students overcame to get at their pith and drift, may have been thought to measure the amount of appreciation, or mayhap there was an unconscious sense that the students loved the truth all the more for the hardships of this nature they had to encounter to attain it.

We have an interesting record of the devices of certain mediæval pulpiteers whose sermons were punctuated with a code of hieroglyphic signs, which meant—here hem and haw; here use the handkerchief to eyes or even nose; here, a long pause; here, snuffle or sob; here, fast or slow; high or low in pitch, loud or whisper; here, ha! ha! or use some other interjection, sigh, gasp, aspire; here, close the book or manuscript, fold the hands, kneel or gesticulate. Perhaps this instinct, in a very attenuated form, still survives in the elaborate directions even yet sometimes given in text books for the florid and over elaborate gesticulation taught in colleges; the double front pronate, supinate hand; the pointed or quivering index finger; the high middle or low double front, half front, expanded, vertical or horizontal gesticulation, sometimes represented in the books as positions in a sphere, of which the shoulders are the center and the utmost reach of the finger tips the parallels and meridians of latitude and longitude. In one I know not how well authenticated case, a rhetorical instructor locked his man into an elaborate and adjustable machine with grooves for each cardinal gesture, once in which, it was said he could make no awkward movement. All this mechanism directly tended to divert attention from what should always be the first or inner circle of resources to be exhausted before the elaborate manual disciplines were studied. Stress, inflection, rate, pitch, timbre—these are the most immediate and effective accompaniments of speech and the best media of psychic inflection, and only when these are exhausted and the intensity of the psychoses overflows to arms do these secondary

media cease to appear artificial, mechanical and stilted. The Delsartean precept, taught by perhaps the most eminent expositor of this system we have had in this country, that the novice should be trained by rules to even vocal and facial expressiveness, so that by pulling the right laryngeal and other trigeminal muscles he can move his hearers, remaining unmoved himself, and thus sparing himself the strain of emotionality as he speaks or acts, is surely not only mistaken but vicious and stultifying because anti-natural.

On the other hand, some academic teachers have become artists of a unique type nowhere described or even mentioned in any book I know. The late Professor Kirchhoff, the eminent mathematical physicist of Berlin, also a very original and creative mind, prepared each lecture to the most *ad unguem* details beforehand, and although his lectures were essentially stating equations as he wrote them on the board, they were so perfect and lucid, and his handwriting so like copy plate, that I used to feel it an artistic pleasure to follow him, as I did one semester, although his mathematics were often so far beyond my ken that I could not understand them even by a careful subsequent study. I persevered in the course because charmed by the complete finish of the style which here made so much of the man. Helmholtz, on the contrary, one of whose courses I followed,—a more *Bahn-brechende* intellect, to whom one of his students paid perhaps the highest tribute ever rendered an investigator, that his every serious thought came nearer than could be said of any other human mind to being an addition to the sum of human knowledge,—was slovenly, careless and constantly erasing long equations, which had been copied from his musty little pocketbook, to start over again, once losing nearly a whole lecture thereby. Du Bois-Reymond, who generally gave half a dozen public lectures open to all comers, who packed the largest Berlin auditorium, rivalled Tyndall and Huxley in his masterly modes of presentation, to say nothing of the many accessories he used. He was fond of sugaring off salient physiological themes and working them up in popular form. Many of these have been printed and are accessible, and will always serve as models of what a great scientific mind can do if it seriously seeks to reach a larger circle of non-experts, braving thereby certain prejudice, which still arouses a mild suspicion in the student mind, that one who can talk so well to the people lacks the supreme gift of original discovery. In his introductory course in physiology, five hours a week for a year in his own laboratory, Du Bois-Reymond was also of all those I have heard perhaps past master in all the arts of presentation. One chief assistant and a corps of helpers were often busy during the entire preceding day in setting up appar-

atus; hanging charts all over the room; cutting or harnessing dogs, pigeons, rabbits and frogs to perform their often gruesome part; preparing stereopticon, electric, acoustic, optical and other illustrative devices.

Here one had little time to write unless he could do so with his eyes elsewhere. Even the young and lamented genius, Christiani, had to stand beside his master and work these devices during the entire hour. The marvel and beauty of it all was that everything went, and alas for the assistant who set up a device that failed to go. Here we had opportunity to see and afterwards to inspect the operations of nearly all the standard experiments in all the departments of this great subject, things which even a professor who spent his life in a laboratory might never see again but would have to take on trust. The great labor and expense of redemonstrating, of setting up and then laying aside ready for next year's use all this magnificent equipment, was an inspiration, and perhaps no science, not even chemistry, in which Kolbe in a Leipzig laboratory was said to emulate this physiologist, affords such opportunity. In the archway over this chemist's desk was inscribed the maxim: "God has ordered the world according to number, weight and measure," and the exactness thus suggested was this teacher's inspiration.

The German pioneer in this scenic pedagogy was Czermack, who with the aid of his wealthy wife built what was well called a physiological theater in Leipzig, that after his death stood empty, was sold and finally destroyed, because none could wield this spear of Achilles, which until Du Bois-Reymond illustrated the phrase of Longfellow "The unfinished window of Aladdin's tower unfinished must remain." Here a series of diagrams like theatrical curtains were prepared and filed in cases mounted on forms and let down on rollers at the proper signal; others came up from the floor of the platform or on traps and others were slid in from the sides with all the available methods of calcium and stereopticon, to which alas the kinetoscopic methods were then wanting. In some departments the power of rapid and effective drawing in the presence of a class with the various colored chalks has been an art much cultivated and highly developed. It requires almost as much special training to be able to talk rapidly and coherently while sketching as it does to reel off the patter of the modern conjuror, with his eyes and words directing the attention of the audience to one point while his hands are performing the skillful and essential manipulations which the trick requires at another. This, however, I have seen carried to a high degree of perfection, especially in morphology, where it is often essential to develop the picture to show the order of the evolution

as the growth of parts or organs. Some draw most charts themselves and with extraordinary rapidity and perfection beforehand. We had a striking illustration of this at the late decennial at Clark University in Professor Ramon y Cajal, who left behind a series of large wall charts illustrating his own discoveries as well and perhaps better in some respects than any of his printed cuts. Professor Morse, as is well known, has added to his own attractiveness as a lecturer, so far as I know the entirely unique facility of drawing with both hands while he talks, provoking applause often by the ease, celerity, and dexterity with which he illustrates sometimes even the most commonplace and unnecessary points.

Every one who lectures steadily for a decade or two develops his own methods and perhaps ideals in lecturing. I can hardly draw at all and undertake it only in emergencies or where it is absolutely necessary, and indeed can hardly write. I have gradually almost abandoned stated quizzes, but make it my chief endeavor to present as concisely and saliently as possible the methods and results, in a way that shall be interesting and stimulating to further study, aiming chiefly at the quality of suggestiveness. I like to use many charts and wall maps, and at the Johns Hopkins University had a draftsman at my disposal several months each year, to copy all important cuts of apparatus, illustrations of instinct, brain charts, curves and tables, and had these elaborately ticketed and filed in rolls in an immense chart case constructed for the purpose. I believe in exhausting the possibilities of the graphic method, which has so large a scope in experimental psychology. Kymograph curves and even original cuts from archives can be passed around in a small class, which should always have immediate access to all the year books, dictionaries and more illustrative hand books possible. The lecture itself I always prepare, spending the entire forenoon until eleven directing upon it, warming up old matter and working in what new I can. The practice of nearly twenty years of almost daily lecturing from eleven to twelve has actually become a neurosis and my brain goes off more or less automatically, almost on the stroke of the hour, so that even on holidays and during vacations I can dictate and my friends say become unwontedly loquacious during that hour. It is my stridulation hour when if at all during the day my brain crepitates. From perhaps a quarter or half past seven to eleven, have become by long habit the best study working hours of the day, as perhaps they are by nature, when I can read receptively and think better than at any other time, while there is a secondary wave of evening augmentation or acceleration although the curve is lower. While I always

lay stress in final examinations upon the matter in my lectures, I consider that they have been most successful if the students are found later in the library following up the topics in the references which I always weigh with great care, trying to give enough but not too many and lay due stress upon those that are best and most recent, taking special care that the best shall be reserved and all accessible. To open a new topic in such a way that the all dominant first impressions shall be favorable, and to generate interest and create mental hunger for more is the goal of endeavor. The best reward is when students say to me afterwards that long standing difficulties have been solved, doubts cleared up, connections hitherto unseen have been established, points previously not comprehended made clear, or, best of all, when they come round to question, seek further light, or even to discuss and differ, or dissent. It has often seemed to me that if a lecturer could so far subordinate his own instinctive desire for authoritativeness and deliberately seek occasionally to challenge contradiction in such subjects as psychology, philosophy or ethics, and rouse the hearer to read and think in order to maintain an opposite view later, it would be a pedagogic method of rare efficacy. Few things are remembered so well as those wherein a bright student believes he has successfully vindicated an opposite opinion, or proven an error in his teacher's work. Nor is it necessary for the latter to deliberately introduce perverse views, errors, or other personal artifacts into his course to secure this precious result, for Jove may nod, and most professors would not be hurt by confessing *sub rosa*, or at least to each other, that their work has involuntary fallacies enough to secure this end if dissent is invited. Hence it has long been my practice to ask at the beginning of each year to be interrupted at any point or to be questioned concerning any view or fact at any time, and this opportunity has never been abused but always utilized with profit to both teacher and taught.

There is a great difference between a lecture which seeks to present the main points and general outlines of a subject to beginners and one which deals with it in a more specialized way for advanced men. It is mainly in the latter course that one can prudently introduce matters where he has sought to be an authority and not an echo himself. The instant these fields are touched there is unconsciously and irresistibly a new spirit in the lecture room. The instructor cannot help feeling greater zest and therefore inspiring interest and tension. His own thought moves more freely and largely; he is a master and takes his hearers to the frontier and is not absorbed in the mere canalization of second-hand knowledge. Truth lives now from mouth

to ear; we are on the frontier facing the unknown; unwonted authority creeps into the very inflections of the teacher which meets instant response. We are moving above the cloudy atmosphere of books and are disporting ourselves on the mountain ranges. Many shades from certainty down to the faintest possibilities are discriminated, when heretofore a bald statement of fact with a few degrees of probability sufficed. Now too, one can criticise others with freedom and appeal with judiciousness to the passionate love of conflict, which fires young blood like the note of the trumpet of battle. If American professors would criticise each other plainly enough to reveal instead of with over courteous deference minimizing or concealing real points of difference, not only the science but the pedagogy of our department would gain. Hence the natural instinct of pugnacity carefully tempered and toned in form and spirit should nevertheless be held to, and the creative mind ought always to live out its life strenuously in the class-room. Moreover one can here turn to the future and occasionally lift himself a little above the ground on the wings of prophecy, when it comes to summing up or forecasting tendencies. Youth lives in the future and is interested in not only present but in impending issues. It loves to see how the lines between men and parties are and especially foresee how they are likely to be drawn, and while the student is prone to take sides against his instructor at the time he generally later and elsewhere, so far as my experience goes, comes round to his view, saving his individuality sometimes only by slight changes of phraseology, sometimes, even, as I must indulge myself in thinking, for the worse rather than for the better. Students want to see their professors on their mettle; they crave to know the things they deem of the most importance in the world; those best, those worst, and why. They thus preform their own souls for the latter struggle for mental existence, and if the teacher is a good and great man they form precious and indelible experiences with the phenomena of altitude in a way that saves many an individuality, and lets loose for the first time a sense of innate power which perhaps might otherwise remain during a life time smothered under the weight of the accumulated knowledge of the past. The active faculties, the efferent processes that enter on the harder life of doing and scorn the easy luxury of mere knowing, are kindled and become later the beacon fires of ambition. Not only all this but there is always increased vitalization of a larger or less body of dead information and knowledge, which becomes potentialized and passes over from having to be hospitably entertained or laboriously retained and becomes a part of the apperceptive power which carries other knowledges rather than is carried. Facts and laws thus undergo a process of higher digestion and assimilation, so that the

good of it is felt over the whole field. The line of demarcation here invisible to most is very clear and distinct for those who have this seeing eye. This, I think, is the chief note of difference between university and collegiate instruction. Not but what the latter has to deal largely with the acquisitions of the past, but it must vitalize all it has any right to use by the creative afflatus, or it is not academic in a university sense. Clear as this line is, it is not sharp in the sense that requires the exclusion of all introduction to independent and originating activity in college. The criterion, however, insistent as it is, is one of preponderance.

Once more the university lecturer, I maintain, should generally appeal to the intellect and the understanding first and most. The moral and emotional reactions should come through this but should not be wanting. He should strive above all things to be perfectly clear and objective, and ever cultivate all qualities of style or method of elocution that favor this and carefully eschew all that hinder it. A calm, generally a rather conversational form of statement, but with every striking phrase that can be devised, with most incessant quotation of all crucial or characteristic forms of statement, repeating diligently every real gem of phrase from every writer he cites in order that the greatest economy and the easiest mode of approach and apprehension be preserved, but with a style that is flexible, alternating long and short sentences each of which has its peculiar power and place, and distinguishing by unconscious plasticity of utterance between what he deems most and what least important;—these I deem ideal goals. I have heard a lecturer who occasionally made use of sentences so long and yet so well balanced that the struggle of interest to grasp all its details into one *e pluribus unum* was so great, that the breath has been held and an involuntarily long and deep gasp expressed grateful relief of tension at the close. What a lecturer Schopenhauer would have been if his career had been academic. Renan, Max Muller and Jowett had their own rare charm of style as did Buffon, who arrayed himself immaculately in his best attire when he lectured. Charcot had his very different charm in clinic as did Westphal, while Ludwig, Kuno Fischer and all others I have heard who were great were unique in style. The artistic finish of many of the new lecture halls and especially the ultra magnificent aulae in Paris, Leipzig, Vienna and elsewhere, in the late new renaissance of academic building in Europe, where the very walls behind the speaker are often decorated with the best products of the highest artists, have distinctly tended lately to make the academic teachers cultivate personal graces and even, it has been said, to create a new academic style.

The topics in our field which lend themselves to popular presentation are those that are of deep and wide human interest and which touch the great problems of life—duty, religion, love—and stir the will and the feelings. There is probably no theme of high academic interest which the real artist in pedagogy cannot make fascinating to the general public, but such artists are very rare, so that there is generally a great gulf fixed between the student, or even expert, adept, esoteric initiate on the one hand, and the sphere of popular interest on the other. The dimensions of this chasm, the success and the frequency of traffic upon the various modes of bridging it, are of great importance in the history of culture. In democratic lands and ages, laymen insist that there shall be no barriers, and that nothing be too recondite for open access by them, and this being attained socialists now often prate of the duty of bringing the university to the people and charge professors who do not or cannot talk to the edification of their own ignorant level with being bloated bondholders or selfish monopolists of knowledge, the sequestration of which some would prevent if they could by a stand and divy up of brains. On the one hand, practical and business interests are quick to respond to every possible lucrative application of the results of science and are constantly drafting from academic life scores of the ablest young experts into the technique by offering larger salaries and by hopes of national prizes. On the other hand, academic leaders, especially where universities are dependent on the State or municipality, fear to get far out of touch of the average representatives of the people. Legislative committees are often quick to scent and censure any very extensive traffic in knowledge which can never, by any possibility, reach their own door or bake their own bread. Hence the growing preponderance of practical and the decline of theoretical or pure culture studies, especially in State universities. The necessity of keeping close step with the masses has been perhaps the leading motive in the recent vulgarization of knowledge by the countless university extension courses which, sincere, earnest and able as are many of the teachers, and serious as is often the interest in such courses, have been too often controlled by the altogether too dominant lust for money, students and for popular favor. As recruiting stations, as bread and circuses to the populace impressed by the marvels of the microscope, magic lantern, the telescope, the simplifications of literature, art, history, sociology, etc., they have been successful and brewed and fermented a body of good will that has told on the student list and the size of annual appropriations. These extension stations too, have been valuable schools of the pedagogic art of lecturing for candidates for

professorial chairs where many of the best instructors have served an apprenticeship in teaching, to which they have ever afterward owed much, and have also sometimes relieved the pressure of the over-supply of masters and doctors, who now hover in swarms about every vacant professorship, the excess of which may breed a learned proletariat, such as Bilroth complained of in Austrian medicine some years since, where not only professors but successful physicians were constrained to assess themselves for bread and clothes for starving graduates.

Where material and intellectual progress is rapid, as it is unprecedently in our day and age, the number of those whose education had to be neglected in their early days, while they battled with life, but who in middle or later years acquired the leisure that competence brings and who lamented and sought to make good their deficiencies by further study, this is an inevitably widening field of demand which must be supplied.

Under the first republic France found as one of the products of the Revolution and born of kindred instincts to those which made Protestantism and forbade the monopoly of all the ways of salvation by the priestly class, that it was necessary for the University to open her doors to all during lectures of famous men. I have myself seen bums from the street snoozing on the back seats, who seemed to have been attracted partly by the warmth, and who would rouse and go out if a band passed on the street. When a few years ago, the *École des Hautes Études* stopped this and closed its academic doors to all but those who had given prescribed guarantees of fitness, there was a great cry against the so-called arrogance and monopoly of knowledge, fortunately not so strong, however, but that the government could resist it. As knowledge advances, it necessarily needs a longer and longer novitiate; technical terms multiply, and a larger proportion of all its works and ways must be withdrawn from the public eye. Lecky and Schopenhauer have enlarged upon the retardation in the advancement of learning which they ascribe to the necessity of pausing to take woman along upon the higher paths. However this may be, there is a certain great loss of acceleration in hitching the masses to the triumphant engine of scientific progress, so that the problem often arises whether the gain to the former outweighs the loss in the latter respect. All those who hold seriously to the principles on which the common school rests agree in their answer, if indeed they do not non-suit the question. For myself I am entirely persuaded that it is possible to bring to the average mind of the lower quarter of our communities or to boys in the middle teens some degree of real comprehension of every great problem worthy of human interest, and every

failed attempt to do this means either pedagogic incompetence or a miscarriage of scientific endeavor or wrong direction.

I have always felt it both a high and large duty as well as a pleasure and a valued discipline to select a few themes best adapted thereto from my class room lectures and work them over for popular delivery. The best and those most often repeated have been changed most radically from their previous form. The public wishes large themes and large relations, so that it is needful to summarize several class lectures for the best results. A few of these I have delivered perhaps several score times; have rewritten them by syllabus and catch word and re-planned over and over again with the constant tendency to emphasize the points approved and slight or omit those not appreciated, so that those which fit best the popular audience are those that touch upon the largest ideas and especially emphasize sentimental values. The public has within the last few years drifted far from the old ideas of what constitutes finished delivery and form, typified for instance in G. W. Curtis. They appreciate art and perfection of detail, but there must be no loudness or mechanical exactness about it, little anecdotage, but far more subtlety, hint and inuendo of meaning. Intellectual brilliancy is sometimes preferred even by woman's clubs to emotional fervor, and never probably in the history of the world has there been such an appetite for novelities and ideal reconstructions that involve sometimes almost a reversal of many a current consensus of opinion or settled practice. Originality is now the most desiderated and welcome form in which individuality or personality can be expressed. While there is interest in all the best and while our ideas of every part and aspect of it are undergoing radical transformation, a great desire of the popular mind is to forecast the future, and even the past is interesting chiefly as it enables us to do this. The world is in love with ideals, and in this country at least, is most plastic to them. How can we so live out our lives that none of the tendencies in us be allowed to degenerate, but the world become plastic to be moulded by the will, is now the ultimate problem.

This is perhaps the very tendency which fascinates us with Nietzsche's *Uebermensch*. We need not agree with him that with Christianity society was overturned and the lowest and the weakest became regnant; that fear and humility have domesticated man to a tame house animal, the *ein stück Heerdenvieh*; and that proletarian instincts now make the development of a really great character almost impossible. We need not hold with him that Christendom is a revolt of slaves overcoming and taking vengeance upon their masters; that in the renaissance the grand ideas of the ancient Greeks and Romans

were aroused, but democracy and the reformation and the yet more plebian revolution brought the vulgar masses again to dominance. But there is no doubt that the average man at the bottom of his soul gives little more than formal recognition to any power higher than himself. He does transvalue morals and tend to a new interpretation of right and wrong. Self abnegation, penitence, humility and pity he feels do not become him, and he wants to enlarge, perhaps inflate, himself to the utmost dimensions consistent with the continuous self-identity of his nature. We are tired of the cowardliness our traditional and artificial consciences make; we are weary to satiety of self and want a larger environment for our wills, where we can escape the satiety of our *fin de siècle* life. The gifted who have great will, strong feeling, brilliant minds need most to outgrow the narrow range of popular ethics and perhaps we shall have to come to agree with Nietzsche that evil is that which prevents the development of this national aristocracy, and that good is that which favors it. The *Uebermensch* has his own code of morals, but it is vastly different from that of the masses. He loves a strenuous life and cannot regard this as merely probationary, even though he is not ready to say that there is no other. Development, first personal and then social, is the inspiring watchword of all. Compassion for the weaklings who ought to be eliminated is not his foible. His individual is sovereign and sacrifice is not his fort, and certainly not for the lowly. Greatness exhausts all the possibilities of nature and lives out all that is in it fully, strongly, generously but irresistibly. It despises every sign of decadence and degeneration, and its gospel is health, wholeness and euphoria. It would be too far aside from my present purpose to show in detail how this diagnosis of this great paralytic fits the popular lecturer's estimate of meaning of the kind popular demand for his wares.

In this age of marvellous growth in all departments of knowledge, specialization is inevitable and the old prejudice against it is waning. For decades the advocates of general culture have asserted or implied an antagonism, which has no existence, between it and the mastery of some specific field or theme. The "bugologist," the man who knows nothing but what Latin names to attach to plants, animals or stones, clouds, stars, etc., has long been the stalking horse or awful example of not only narrowness but unpracticality and ignorance of all that lies within the homely ken of common sense. Men who realize this ideal have in my belief always been as rare as arithmetical or musical prodigies, who are also sometimes semi-idiotic. This danger is mostly felt by teachers of grammar and high schools,

and most often finds expression in their meetings. Occasionally a college professor or even president, who has pedagogical gifts but lacks those of origination, or one whose mental capital consists in the vast generalizations of philosophy of a now obsolescent type, helps to keep this inveterate prejudice of the school against the university in countenance.

The fact is that the two greatest generalizations of modern science have made narrowness, if it ever was an appanage of the specialist, henceforth almost impossible. The first of these is evolution which subordinates all botanical and zoölogical classification to its larger generalizations. Every organ and function from the cell up in the great biologic field is related to every other. No one knows muscle, brain, liver, etc., well for any species unless he knows evolution in all its stages. Thus everything in this field has become more or less comparative, and the influence of Darwinism here has extended to the methods of nearly all those sciences which deal with man. We have not only comparative anatomy and now even physiology, but comparative religions, comparative philology, psychology and mythology, etc. The family, State, church, school, and nearly every human institution are now studied in this way with the assumption so often expressed that he who knows only one religion, language, ethnic set of customs or institutions knows none.

The other great law is the conservation of energy, which links especially all those sciences which deal with inanimate nature, especially physics and chemistry, and their various offshoots and relations. All physical and material processes are thus now studied as manifestations of one great force or energy in the world, if not of one great material background principle. Thus on whatever topic, however tiny, one specializes, he is obliged to go back and down from his apex toward the more and more fundamental conceptions at the base of his pyramid if he undertakes good or lasting investigation. This propensity of modern science to assume cosmic dimensions or at least to get into wide rapport with universal principles more or less definite of itself makes specialization a necessity of modern culture, which otherwise would be in a danger, never paralleled since Alexandrian and mediæval speculation, of losing itself in mystic conjectures and vague generalizations. I know an eminent professor of physics, who has a case in his library devoted to what he calls the crank literature of his subject in which he places an astonishing list of works of great popular renown by eminent men, because they deal only with theories and conjectures in the field of nature, now so tempting and dangerous to all not securely anchored by mastery of all the details in some definite sub-department of science.

Partly in view of this, but also of other conditions, I began years ago to hold occasional library evenings in my study, where, after some preparation, I simply demonstrated books a little, as if they were specimens in natural history. Standing before a case, I go through it shelf by shelf, taking out each important book that has influenced me, telling in one or a few sentences, the best chapter, paragraphs or thoughts in it; sometimes reading even a page; and passing it around, always with special thought of either the personal or the thesis needs of each man. Here, for instance, is a two leaved communication of Helmholtz, issued in 1852, describing the germ thought and picturing the apparatus of nerve times, now out of print, for which I paid \$8, but which is the germ of very much that has been done since, as well as a model of condensed presentation of results, that it took this master nearly two years to attain. Here is a forgotten old pamphlet of Fechner's presenting, too, in their wildest form, the vagaries or the night side of this marvellous mind, but especially significant to one or two of the men. Here is a chapter in a recent work, summarizing a long train of investigations, and here a digest of all that has been done up to date along another line. Here is a rare story of the inner workings of the mind of a lunatic, documented in a series of articles in an out of the way journal of insanity; here a minute study of three cases of very elaborate and systematized delusions; here a paper on instinct, that although more than a decade old, anticipates much that has been done since; there a translation of the first part of a Russian book, the later series of which never appeared, but which is a model of pith and brevity. Here is a row of new books sent for review to my journal, which I have glanced over enough to find one or two of great value and point; in this article, Minot, in that, Flechsig, in another, Cajal gives a key to his methods or results. A marvellous article of Lotze, often unknown by those who study him, in an old physiological dictionary, is brought forth; here a friend—an eminent author—has sent me a rare work he came across, of much psychological moment; again, here is a work lately much praised, but which I deem commonplace or worthless to the expert. Thus I continue, until in the end, each student has held in his hand and seen at least the outside (a point I deem of considerable value), of about all the sources of what little wisdom I possess, and can profit from the "finds" of all my academic life, and also by its mistakes. The *encheiresia*, or manipulation of the best, any of which they can draw by entering them in my book at any time as from the library, often, alas! to my great inconvenience and often to my sadness, as I discover laxities of the biblic conscience that returns books, has pro-

duced results I think highly valuable ; and while it has perhaps revealed the secrets and thereby lessened the charm to others, if such there was, of my own little wisdom, it has helped to put the pupil on my shoulders and enabled him in some sense to begin where I left off.

Although the university seminary, as a group of advanced men meeting with a professor for informal but more or less systematic advanced work, is a recent development, its principle goes back to the academic lyceum and porch and probably much farther. A great philosopher described his idea of heaven as prolonged conversation with the brightest minds on the highest themes, and another conceives this as the highest of all human fruitions for the sake of which all the institutions of civilizations exist and in which they culminate. The charm and the stimulus of conversation is unequalled by any other intellectual incentive. Question, answer, debate and dialogue ; the give and take with many men of many minds ; the sharpening as iron sharpens iron of a face by that of his friend—all this rightly carried on appeals to about every sentiment, emotion and incitement to intellectual activity and growth that exists in the human soul. A book is a dead companion. French literature owes its style, unsurpassed in the modern world of letters, to the fact that for a long time the salon dominated literature and men wrote in a talky way instead of talking in a bookish one. The strong gregarious instinct which makes a man shun solitude and love society ; the preciousness of friendship, consolation, insight, courage, love, hate—all are expressed in word of mouth so far more directly and come so much fresher and warmer from the heart than from the pen, and are received with so much less change or loss of import through the old avenues of the ear than through the visual study of the printed page. Plato knew how to conserve a little of this dialectic and dramatic charm by his dialogue method which many philosophers have striven for with very imperfect success.

Into the well conducted seminary all the hereditary influences from all the council camp fires and stories of our forebears, a little of the esoteric spirit of all the secret organizations of savage life from the immemorial past have gone and in it they find one of their highest expressions in the modern life of culture. No department is so well calculated to bring out all the power of this new-old and complex pedagogic instrument. We have here not only the play of different personalities, temperaments, characters, age, experience, and sometimes even sex, but also the unique charm of interplay of different philosophic schools and standpoints, and that, too, just at the point where

innate disposition is in the most fluid and plastic stage of transition over into the labelled schools and sects that mark the history of man's highest thought about his own nature. This was expressed in the practically lost etymology of the word philosophy or love of a sapience not fully attained or definitized. Young men are in the process of finding out whether they instinctively lean most toward materialism or spiritualism, optimism, pessimism, scepticism or dogmatism and all the rest, among and about which supports their growing souls are orienting and circumnavigating. The one distinctive note of a good philosophical seminary is freedom, and not only must there be nothing repressive in its atmosphere, but everything calculated to evoke and unfold the crudest stirrings of the soul should here be invited to expression. Reserves or preponderance of any one system over others should be banished, and the talk should be not only mind to mind, but on occasion heart to heart and conscience to conscience. There is a vagueness and mysticism about youth that is inevitable at the time when sentiment is ripening into thought and reason, and which is a very different thing from the settled creed of the mystic, just as there is an honest questioning and doubting which has nothing to do with the settled adult scepticism; to mistake the two is a serious error. The rabulist and the sophist, the debater, the settled advocate of the tenets of any one school, the man of any saturated orthodoxy, the literalist or bibliolater, and the dullard may all sometimes need repression in the interest of the whole ; but even they more often need to be drawn out to feel their errors rectified by the reactions of the sense of the whole upon them, until they can burn the smoke of their own imperfect mental combustion. All this the tact of an experienced and wise leader ought to be able to secure.

In my own experience here, many methods have been tried. I began, years ago, a weekly conference around a large table in the evening at the Johns Hopkins. I selected bright men tending toward very different standpoints, and asked each to write down concisely his own beliefs, tendencies and questions about the larger themes of philosophy, relying upon the difference of individual minds to vary sufficiently the attractiveness of each evening's programme. Another year I tried to devote one or two evenings to bringing out in conversational way, by a leader appointed weeks beforehand, the main philosophic standpoints and to invite discussion on each. Other seasons we have read Kant, Plato, Schopenhauer, parts of Darwin, Spencer and others, interpolating discussions at every fruitful point. The methods of one of these years has been characterized, in a way, in a popular monthly by a student

member.¹ I have also tried the seminary in the afternoon, but the university building and the garish day do not, for some reason, constitute the best environment, so that gradually in the last ten years I have settled to Monday evening from seven to ten in the Library of my own house. We have not deemed it advisable, as in two or three such clubs I know, to introduce the German method of smoking or sipping beer, but have broken the long hours by a fifteen minute pause for refreshments, in the dining room across the hall, served by my wife, assisted generally by one or more university or other ladies. The numbers have ranged from six or eight to over forty, with an average attendance of about twenty in recent years. One member is appointed in advance to read or otherwise present some account of either the whole or a part of the work he is doing, perhaps for his thesis. Instruments are sometimes brought from the laboratory across the way, or charts exhibited or blackboard work done, or cuts or illustrations passed around. The leader, or talker of the evening, invites question and discussion at every point, and usually reads perhaps three-quarters of an hour or more, the other three-quarters being taken up by a free discussion, with a different man and theme, usually a little briefer, after the lunch recess; so that there is a change of mental scenery and two subjects an evening. I do myself such very informal presiding as is necessary, but often have nothing whatever to do save to call on each man to read. Very rarely indeed does discussion become personal in any offensive sense, although even here I seek to give long line for the interest which may thus be generated. If interest lags, I often call on those I think most competent for comment or remark. As a rule, discussion is animated and very stimulating and instructive to all, myself included.

The advantages chiefly gained here are first of all, each man becomes well acquainted with the work every other is doing, sympathetic enough to follow it and get the advantage therefrom second only to that which comes from his own work. Each paper averages greater weight and importance than does one of my own lectures, because it is more condensed and especially because it generally seeks to deal with a totally new theme and view point and has the stimulus of competition because done by a student rather than by a teacher. In the topics selected and the treatment, while as elsewhere indicated most aim at an original contribution, they must nevertheless avoid the Charybdis of ultra specialization; hence as a rule all are interested in the work of all and those ethically or meta-

¹ H. Austin Aikins: From the Reports of the Plato Club. Atlantic Monthly, Sept. and Oct., 1894.

physically inclined rarely lose touch with the laboratory man and *vice versa*, although here lies perhaps the chief danger. Hence the interest and the profit by this seminary method is certainly greater than by any other with which I have had experience either in this country or in my European pupilage in six. Each man pools here for the common benefit all the facts and inferences he is able to evolve in a year's work, and thus the evils some might ascribe even to this degree of specialization are at least mitigated, because each here keeps in rapport with the work of all. The interest generated evokes, too, a large return to the reader; for many an important fact, law, or literary reference is suggested to him by his fellow seminarists. Facts are often disputed; methods of experimentation criticised; logical processes rectified; obscurities and difficulties lessened, so that we have here a method of joint or collective intellectual endeavor so great that co-operation is volunteered in the way of securing questionnaire returns or serving as subjects for experimentation in the laboratory. In those themes where a large and varied body of personal experiences are needed spontaneous contributions often turn the seminary for a time into a kind of psychological experience meeting, and not infrequently debate has been prolonged sometimes an hour beyond the regular hour for adjournment.

Here especially the instructor learns to know his men to gauge the amount of their reading, the accuracy of their thinking, the quality of their minds, their religious and philosophic standpoints, and a good deal about their tempers and dispositions. Here he has one of the most exquisite pleasures of the pedagogue in seeing his men grow from month to month and knowing the amazing difference between good and ordinary quality. He can also form a pretty good opinion of the pedagogic capacity of each man, which may be of real service to him when called as he often is by many teachers' agencies and college presidents for a personal opinion upon that subject. He sees more of the breeding and social experience and the great individual differences in adaptation, and learns how his men regard each other, because here all is as free and unconstrained as possible and personality during a year here reveals itself by more or less expression in almost every direction.

The standpoint of the governing board, both trustees and faculty, is so different from that of even the advanced university student that he rarely sees it. Almost every department and institution of academic life look very different from the administrative and teacher's side, and the transition for the new professor is sometimes marked by errors and mistakes. Hence I have formed the habit of giving at least one and sometimes several lectures each year on ethics, "morale" and prac-

tice of colleges, in which I seek to describe as best I can the points which weigh most with appointing bodies in deciding between rival candidates of perhaps equal intellectual attainments. I speak here of petty personal matters—manner, health, spirit of subordination, and the dangers of cockiness in young men who have served a long apprenticeship abroad and at home and come from the university to teach rudiments in a college or normal school; of the need of being helpful and not critical in faculty councils; in adjusting themselves with due plasticity to all their environments; of not teaching over the heads of their pupils, which is one of the chief dangers of those who have lately come into the possession of higher and special knowledge, but of cultivating the pedagogic art of simplicity, directness, and avoiding as clinkers in the furnace undue technicality, of which young experts are so fond, and which is so fatal; of putting up with the meagre library and laboratory facilities they may find and doing all this cheerfully and making the best of it; and of cultivating everywhere the talent of sympathy and appreciation rather than criticism. Good men thus are often turned down for sheer top loftiness and arrogance, which is often, after all, merely superficial and perhaps a mere trick of manner. Petty, commonplace and trivial as some of these matters sometimes seem to students, they are of great practical importance, and a judicious ventilation of the way in which those on the ground who know and have made the traditions of the place and are supremely and parentally interested in the future of the students committed to their care and whose policy it is to serve and develop the interests of the institution, are sometimes a most wholesome revelation. I can name men of excellent ability and with every element of success, who fail in their chosen life career as academic teachers, because of habitual carelessness in their toilet, or because in a few respects their manners were bad; or because they were at bottom self-seeking; or because they had a balky will and could not compromise or co-operate with others in a collegial way; one fails from the mere mannerism of top-loftiness or if he always speaks of and to others *de hont en las*; one is too fond of opposition, criticism and antagonism; one is irritable if fatigued. The tragic aspect of all this is to see occasionally an able man with some fault of temperament, displaying a trait which seems from most aspects slight and removable, but which a sagacious professor knows to be not a small surface stone but the outcrop of a ledge that runs far too deep to be got rid of. Professors in large institutions who meet many students casually but are not in the daily personal contact of laboratory, seminary, and conference as I have been for twenty years, learn little of this kind of individual psychology.

When the novitiate starts in his first position upon the lecture method, it is generally a new and trying ordeal, and many otherwise successful fail and for many ways and reasons. Their most common error is to pay out their body of knowledge too rapidly, so that perhaps long before the close of the year they have practically said about all they know, and their reservoir begins to "run emptyings." Many a man who ought to succeed finds that in the spring, when his class need extra attractions to offset spring ennui and unrest and the out of door attractions, he has said all his best things, and the excellent first impression he made in the fall is slowly displaced by discontent, disorder, and this last unfavorable impression being most recent may motivate the loss of his place, when if he had judiciously distributed his material so that the best came last, like a novel with a climax in the last chapter, his career would have been saved. Many novices, too, have defects that seem to them too petty and insignificant to be seriously criticised, much less laboriously eradicated, that greatly interfere with their success as class lecturers. One of the ablest men I have known inserted too many "ah's" and "ers" into all his pauses, so that it distracted the attention of the serious and provoked petty disorders in the frivolous members of his class. Another could not raise his voice to speak loud enough; one spoke too fast; another with too much sonorous magniloquence; several have petty automatisms; others have deeper faults; while most fall into the great error of assuming too much knowledge on the part of their hearers, going too fast and with insufficient elaboration and explanation of all difficulties, so that they soon disconnect with their classes and go their own way alone. Many who do well in text-book work by nature, or have learned to do so by practice, fail as lecturers from removable causes. In view of these facts, I instituted years ago at Baltimore a lecture course by students, where each is to give one or sometimes half a dozen lectures upon stock subjects to the other members of the class and to myself. This at least creates some consciousness of what it means to hold attention, to stand and talk and perhaps use a blackboard, both of which are often new experiences. It generally brings considerable consciousness of faults, and while a lecture to such an audience must necessarily be different in being more advanced than to undergraduates, good on the whole is done. Immediately at the close of the lecture, when the novitiate is usually a little conscious and plastic, I have a personal interview with each man on the basis of the notes I take, and speak to him with the utmost plainness and detail, sometimes even about his linen, and dress, but far more often about his manner and style of presentation, while he often hears in ways both friendly and disagreeable from others of his hearers. Occasionally the student who

has scorned all this and insisted that if he knows the subject matter other things need little attention realizes his mistake, while every hearer secures the benefit of a more or less lively appreciation of the faults in others which he desires to avoid himself.

Science, using the term in its broadest and highest sense to include the humanities, is the greatest achievement of the human soul thus far. It is the chief and perhaps only security that mankind will not relapse to barbarism, and is often well compared, since Kant's pregnant figure of speech, to a solid island of terra firma established on the rocks, but surrounded by fogs and mists of dreamery and angry waves and storms of popular prejudice and frenzy. Here we have the *aliquod inconcussum*, which Plato sought in a few laboriously wrought out ideas, which theologies have formulated as the data of revelation from the source of absolute wisdom, which ecstasies have sought to intuit with Titanic, heaven storming endeavor, and lack of faith in more or less of which has made all the pessimisms in the history of thought which were not distinctly temperamental in their origin.

Specialization is now the best of all modern refuges of individuality. Here personality culminates and finds often its most distinctive expression and here celebrates its chief triumphs in the modern world. The highest sense of mastery and power now comes to those who have pushed to and beyond the frontier of established knowledge and added ever so little to its sum total. To have done this marks the termination of apprenticeship to learning and constitutes the scholar a master in a sense more true and real than any diploma can confer. The scholar rises above echo, opinion, and all second-hand knowledge, and becomes himself an authority and establishes a place for himself in the intellectual world, if he has contributed ever so small a building stone to the great temple of knowledge.

One of the most significant and epoch making experience in the growth of any soul is when something first done or said, which, while the great public ignores or even derides it is recognized by the few elite near or far as a real "contribution;" and this, too, whether it be an original thought or sentiment or a discovery based upon long, tedious and minute research. The first experience of this for a young man is like its first prey or the first taste of blood to a young tiger. It marks the beginning of a new intellectual life and is a kind of logical and psychic conversion. The young contributor becomes henceforth a member of the great body corporate of science, having his own function in its church militant yet invisible. If not an organ in the body of science, he is at least a cell with functions truly

vital, and both more independent and more completely organized into its larger whole. Most of us little realize how the world to-day, whether in the court room, the committee rooms of Congress or Parliament, in the medical council in critical cases, in manufacturing processes, in all departments of trade, commerce and technology, is ruled by experts, who wherever things go rightly or according to the best available knowledge really say the decisive word. If science ever has its hagiology in Comte's sense, if it ever has its Bolandist fathers who have spent centuries in writing the lives of all who have labored perhaps in toil, solitude and penury, but with success in advancing the boundaries of science, we shall come to realize that the modern world is in the hearts of a great choir, visible and invisible, who from their urns and ashes or from their libraries or laboratories dominate our civilization and are a class just as distinct from the best teachers, students or dealers in second-hand knowledge as manufacturing is distinct from distribution of goods. Few in our day ever feel the pristine sense of freshness and newness in the world which we often postulate for the primitive Aryan, the ideal Arcadian, Andalusian, and of which spring and youth are thought to be the after-glow or after-images, but the sensation of discovery brings it back and gilds the world with the old and forgotten glory, for it is probably the most intense pleasure of which noble souls are capable, to give each aspirant for an intellectual career some taste of this experience, is worth almost any labor and sacrifice on the teacher's part. Indeed it is the inalienable right of such youth, for now first they truly know what life and the world really are.

In this function, according to my conception, the university as distinct from the college or every other institution of learning culminates. Research is its native breath, its vital air; and in the transvaluation of all kinds of educational worth that impends, those institutions will shine like stars of the first magnitude which have best cultivated this spirit and produced the best quality and largest quantity of new discoveries and inventions. This work is more sacred and religious than any other vocation of man, not only because it includes religion in its scope, but because the university is the chief and fittest organ for the evolution of the super-man, bringing out the highest and most complete results of a truly liberal education which without it is a truncated and arrested thing. Here humanity at its best blossoms and yields its choicest fruitage in these real seminaries of the soul. Here youth learns to scorn and despise the luxury and selfishness of mere knowing and passive culture and passes on to the higher stage of doing and efferent achievement. Here it learns that the true organ and instrument of

knowing is doing, and the vanity of merely remembered attainment which has to be carried and does not ripen into the power that carries.

This is a new midwifery, if not higher than the hebamy of Socrates, requiring surely no less wisdom, labor and patience, but also bringing no less reward to those whose supreme passion it is to help youth on to this, its highest plane of development. The problem of how to accomplish this result is one of the most difficult in the higher pedagogy and varies greatly in different departments. In some like mathematics and perhaps physics, the mines have been long worked and the paying veins are at the bottom and the methods are extremely elaborate, whereas in others it is easier surface mining and simpler devices sometimes suffice. The newer departments of psychology are more akin to this latter class, although the older and more fundamental departments require long discipline before the sword of Theseus can be drawn from beneath the rock.

Our ideal and method, the slow growth of years of tentative experience, has now settled into somewhat the following form. Soon after the beginning of the academic year, each student is requested to make an appointment with the instructor whose work is most in the line of his tastes, abilities or requirements, and to tell what themes he has found most interesting; on what, if any, he has written; where he has read most; what he is preparing for. A few bring their own problems, which are submitted and carefully discussed in this personal way. In such cases the professor quite often, if not in the majority of cases, finds the subject either too large or can show the student where all he intends and more has already been done in ways that it would be difficult for him to surpass; and often the student's theme, if not entirely impossible of solution with present resources at command, involves too great risk of failure to warrant the expenditure of what is perhaps the best year or two of the student's life and leisure, or at any rate is too uncertain for a doctor's thesis, where there must be a very reasonable probability that when the long net is drawn in there will be at least a small draft of results. With some temperaments this involves quite a struggle and some diplomacy. The student is sure that he has something great within his reach, while the professor knows that efforts in the same direction have hitherto only given negative results, and that it would only end in vague generalizations and conjectures or in the accumulations of figures and facts of a contradictory nature, which defy conclusions or interpretations.

I have on my shelves now no less than five elaborate unpublished and unaccepted papers, each a year's work, which have

all aborted in this way. Sometimes the student's confidence lasts bravely through the year, but though the professor does what he can to help him out and to bring to naught his own predictions, the thesis committee refuses to pass it for a degree, or editor after editor of archives, studies or memoirs turns it down and publishers promptly send it back to my *asylum immaturitatis*, of no use save to emphasize warnings to other overconfident aspirants for the crown of successful research. The fact is it requires the most diligent watch to distinguish ways that lead into blind alleys from those capable of opening up new and well travelled highways up to and into the unknown. I opine that few professors, who have undertaken such work, would not, if they made a clean breast of it, confess that the issue had shown that they themselves had often been blind leaders, or if they had not misled from ignorance had at least taken unwarrantable chances of failure. Instructors differ. Some gravitate to too difficult thesis themes or fail to see that the latter must be more conservatively chosen than if larger ventures can be made, while others are too timid, and are content to risk no more than petty variations of standard or classical researches and hug the shore. One of the chief qualifications of a university professor should be the power to feel his way by some of the subtle powers of divination to the pregnant "next steps," or better yet to strike out new lines in larger fields, and not spend a life time in some domain where they have achieved some one signal first success. To detect this power in making selections of professors and forecast the development of it in young candidates should be one of the chief qualifications of an university president. These officers would be marked very differently from their rating in other respects. Some of the otherwise best are worst here and *vice versa*.

Our instructors in the departments sedulously keep tab during the year on possible lines for research, utilizing suggestions from both reading and laboratory work and keeping a note book for this very purpose. As the year goes by and such notes accumulate, they are often found to center about some larger theme in a way that suggests approach from several sides, and until by reflection a good step is found. Many of these begin to live in the instructor's brain and to stimulate his unconscious cerebration, and some thus during the year reveal their own inadequacy, while others become centers of ever deepening interest and the ways of attack slowly evolve. At the close of the year here, instructors meet and compare, perhaps for nearly a whole afternoon, our themes, criticising some out of existence and pooling our knowledge or suggestions to the enlargement of others. Thus a year of lecturing, seminary work and thinking ought to start a little nursery of buds and

bring them to a stage of successful transplantation to other minds.

This latter is the great problem of fitting and making the individual adjustment. Sometimes a man brings a chosen theme that can be successfully modulated over into one of ours with little loss of interest or ability on his part. Sometimes the reading, lecturing, or best of all some individual suggests the suitability of some of our topics for him, but occasionally they have to be assigned, because we can find no prepotent tendency in a student's mind for one over another. Sometimes, too, there are misfits and at the end of a week or a month, either we or the student realizes that he can make nothing of his topic or can care nothing for it, and he throws it up and loses his work and tries another and occasionally but not often students bring excellent topics new and even stimulating to us.

Having once settled thus each to the work which he seems able to do best, the problem of books and apparatus must be disposed of. The library with ample funds carefully selects from all accessible sources the title of every book or pamphlet likely to be of service to each man, and most of the library fund is reserved for such expenditure. Here the work of the librarian becomes all important and is utterly different from that of any kind of public or other librarian. He must be familiar with all the year books and bibliographies, publishers' announcements, etc., and prompt to get in his orders. He must communicate with other libraries and be as eager to do as to receive favors. He generally finds many otherwise unknown references and is always running down new material and bringing forward weekly, if not daily, to almost all something each is glad to get. He is thus a diligent waterer or the *Aquarius* of the university garden, and on his efficiency very much depends. His work is not merely to produce speedily what is wanted, but to find out himself in advance what is serviceable. Unlike a public librarian, he has at hand catalogues not merely of books but memoirs in many archives, quarterly, monthly or other occasional publications, so that he can tell at a glance, if he knows either author or subject, the whether and what of the many serial studies, archives, proceedings and other special monographic literature. He even provides one or two hundred reprints of all the more important theses and articles, published at his own institution, in order to utilize them as exchanges for other special matter of similar kind, otherwise unattainable. He is himself a living index of indexes, not so much a bibliophile as a worker, holding books to be not ends but means, or best treated when soonest worn out in the service of those most competent. His pride is not in the order, number, or small loss list, but rather in the

ratio of annual use, or the total number of books per person drawing them. He realizes that the library must be a servant and not a master, and that the ideal is to make everything as accessible and tempting as possible.

Every good university has a well equipped mechanic's shop, where one or more of the most skilled workmen devote their time to making instruments for use in the different lines of research. Thus when subjects are settled on, the professor must determine in each case what new apparatus can be bought and what must be made. If he is clever with his pencil, he can indicate, or if he is experienced he can inform with much detail what quantity or quality of each supply will be needed or best, and give the mechanic valuable hints in construction. Then when all supplies are ready, the instructor must almost live in the laboratory in some as in the library in other topics, at least for the first month or two, working or sitting beside each student in turn, fertile with rule of thumb, knacks, and devices, and ready at settling upon modes of experimentation and protocol record keeping, expecting that each who has not had experience in the manipulation of instruments will be at first helpless as a child. This latter is especially the case if the student's training has been chiefly hitherto on the high plateau of speculation and he now comes down to the lower level of inductive plodding and drudgery with details. In these cases there is generally a period of great unsettlement in the novitiate's mind about the value of the work so concrete and objective, and old prejudices have to be overlived or eradicated. There is much discouragement from the sense of helplessness and great need of the sustaining hope and courage that can be imparted by a veteran as by contagion. Almost daily elbow co-operation in the laboratory and weekly or semi-weekly personal conference of perhaps an hour are necessary before the new work slowly gathers momentum of its own in the student's soul, when the master can gradually withdraw as fast as independence and competence can be trusted.

The customs of professors in the guidance of research differ as widely as human nature. Some reduce the student almost to the condition of a famulus, who must fetch and carry, hew wood and draw water, at first. I can name books of much scope and value wherein about all the work has been done, not by the professor, who appears to be its author, but by his students with no individual acknowledgments. The themes were far too highly specialized for their own best educational growth and were carried out, not with the full frankness of co-operators in a joint work, but as servants do the master's bidding blindly and with little comprehension, even after it was done, of its meaning or wider relations. Traditions and even

rules in the different European laboratories and different universities vary and are sometimes much detailed. Within recent years a few vigorous German students have prosecuted their professors for appropriation of their own intellectual property and in one or two cases at least, as I think, happily won their cause. Many an instructor feels justified in retaining sometimes for years the work of his student and depriving him of his just right and credit for the same, and bringing forth all the work of his laboratory as if it were his own goods and chattels. This robs the student of one of the chief values of investigation and makes his work so ancillary and merged in that of his instructor that the spur of individual ambition and incentive is lost. I am aware that there is something to be said in justification of this ancient way, but it is a relic of the mediæval servitude of the student to his master and smacks too much of the bullying of lower by upper classes to please the modern taste. Next to the loss of development to the student comes the serious loss to science. More and more the best work of the world is done by young men who can be trusted, inspired and guided only by the way of freedom. To cut off the individual enjoyment of natural and just products of one's labor is as unwise in the economy of intellectual productivity as is servitude for industrial development.

The other extreme is represented by the practice of those who, as I have always done, seek entirely to subordinate self to the interests of the student. I feel that he has a need and has a right to all the best literature, thought or suggestion I can possibly provide him. If I have an unfinished work on my own hands, even though quite well advanced, and a student can be trained to do it, I gladly relinquish all rights and claims, and do not repine or blame him even if he forgets, as is sometimes the case, a line of acknowledgment at the end, which common courtesy usually prompts. To phrase this line is often a severe test of both the mental and moral quality of the student. On the one hand he abhors the feeling of dependence. Gratitude is not the foible of youth who have most of their life been served. If it appears that their work was done too close to a man of repute, they fear, and often justly, that their part in it will be underestimated by the public and their impressario will have the lion's share of the credit which he has been too ready to claim in the past. Men whose work I had well along before I ever saw them, to whom I have given scores of hours and loaned scores of books and utterly emptied my mind and written abstracts for, have mentioned my name at the end with a list of others whom they had found suggestive. If one almost guide the pen their obliviousness is sometimes greatest. This the professor must accept with complacency, consoling himself perhaps that the

more eminent he is the more necessary this becomes if the student would justly guard his own individuality. The good teacher will deem this far more agreeable to himself than the other and far rarer returns of excessive acknowledgment, especially if the latter is made from work he does not approve and would not father.

Often the student begins but cannot finish his work, and this I sometimes do all in his name, as indeed one of my teachers, Professor Ludwig, used to take our crude results, often only tables, and write up the entire work and print it as ours, stating only in a foot-note that it was done in his laboratory. I feel that youth must be served and that the good university professor should be content to be the very dung beneath his roots, if so it be that he only grow and burgeon. One who does this successfully can say to his pupils in a very pregnant sense: "Ye are my epistles known and read of all men." If he has fit students from year to year he can generally express the best that is in his soul to and through them. If he takes this course, however, he must make up his mind in advance that youthful nature is constitutionally lacking in gratitude, and that in the imponderable possessions of the mind the laws of *meum* and *tuum* are not yet established, and that youth has had so long an experience of being done for and so short a one of doing for self that something as strong though by no means as blamable as the predatory instincts of primitive man still reigns in his domain. But it is a fault mainly of nature and not of intention, and as it heightens the most precious sense of having really done something, leaves the teacher who loves his work and his pupils with a satisfaction that is always triumphant over his disquiet and on a far higher moral plane than it.

Between these two extremes are very many gradations, and it would be a fruitful and new chapter indeed in ethics that should undertake to demarcate and lay down the course of duty and responsibility here. One thing is certain, however, and that is that most novices of research are at first as helpless as babes trying to walk, and unlike these most need rather prolonged tutelage before they can balance themselves and progress. For the teacher, too, all this is a work almost totally different from class room instruction of any and every kind. It demands different moral purposes; it moves in the realm of different psychological laws; involves a far heavier strain; and taxes his vitality, patience and endurance far more.

For the successful completion of this line of endeavor, each department should either conduct or have control of some serial publication. The pedagogy of these also constitutes a new and very complex problem. When the work is complete and handed in, the judge or jury of publication have their

opportunity. It must be concise with sufficient but not too many references; enough but not too many tables and cuts; expressed in clear and good English, and must sometimes be returned over and over for revision and especially for condensation, for prolixity is perhaps here the prevailing fault. By a judicious use of this function, too, the larger overthoughts can often be cultivated. The student is prone to be lost in the details of his work, so that he cannot stand off and see its possibilities in due proportion, much less its larger relation to adjacent topics and to the great centers of perennial human interest. The logical order and arrangement of objects often give him pause. Some who are excellent in manipulation and clever in laboratory devices and apparatus find their interest has culminated when everything works with precision. Others' interest centers in the theme itself. They slight methods and are intent only on catching every suggestion from their experiments that can contribute to further insight into their problem, and having secured this, are careless in presentation. In others the literary faculty is dominant and their best work is done in graphic descriptions of processes and results. Few indeed are they who are strong in all these, and the prefect of publication has thus his own large problems in the higher university pedagogy.

When all this is accomplished, proof is read, journal printed and reprints given out, comes a still further and interesting experience, the complete utilization of which is of great importance. The young man must now make his constituency and establish his list of correspondents and exchanges. He makes a list of those men of eminence in all lands whom he most reveres; of laboratories that are most productive; perhaps of college officials most liable to be of service in forwarding his career; and especially of journals likely to pass judgment upon or give any kind of notice of his endeavor; and lastly of his personal friends or relatives interested in the first work of his hands. Parents to whom dedications are made with almost pathetic propriety as the first lock of the infant's hair in Rome was dedicated to the gods; the appended life or *vita* summarizing the chief educational advantages that have been enjoyed; perhaps a few appended theses, relics of the mediæval disputations, which state positions perhaps in very different fields showing his range of interests and that he is ready to defend against all comers, and the thanks to teachers to whom he owes most; thus in the first printed thesis, the young candidate puts on his modern virile toga, steps forth into the arena and throws down his gauntlet, attains his majority in the great mental republic of intellect and culture, and even though the rest of his life be spent on a lower plane of teaching, he has

felt what real achievement means in the supreme world of thought.

Thus, in fine, if the topic has been well chosen and is congenial, which is almost equivalent to half a year's work; and if all has thus been brought through to a finish, even though it appear later that the work had been done elsewhere or even done better, the precious experience of piloting one's self in unknown seas or exploring unknown lands has nevertheless established interest in the intellectual frontier and its problems; has given a taste of the rapture of intellectual procreation, and thus invested the world with a charm which otherwise would not have been experienced, which will forever beckon and allure to the brighter world of high endeavor and make the duller world of prosaic commonplace seem stale and unsatisfactory in a high platonic sense.

When the student first aspires to add to the sum of human knowledge, several things are necessary. First, he must enlarge to the uttermost, in the direction intended, his own objective experience. This he may do in some departments by multiplying his data of facts by laboratory experiments and collecting a large protocol of material to be counted, weighed, photographed, measured, tabulated, utilized for curves, etc. Here all the conditions can and must be perfectly controlled in order that by elimination the true cause can be shown with no ambiguity. But we already here see the infirmity of human nature in the strong tendency to simply accumulate like the ant. The novice must constantly fight himself lest he fall into the habit of recording results; multiplying slides or tests in a mechanical way or like a day laborer, instead of scrutinizing every item with the most intense mentality to catch its secret and see its drift as it comes, and to modify conditions according to its every indication. To stop with the mere protocol or with counted results is a crass empiricism, which unhappily is sometimes encouraged even by instructors, and is especially abnormal just at an age when the best things in life are ideal constructions. The student often pleads, and may very easily fall into the affectation of thinking that it is a virtue not to go beyond his results; that he is a positivist and must not speculate; that scientific prudence and modesty forbid him to think beyond what his method or apparatus give him, but this is often one of the many masks of laziness and inertia which shelters itself under the guise of scientific reserve. The fact is that while there is an inestimable disciplinary power in the severe regimen of careful experimentation, whereby every logical precept is almost unconsciously instilled, there is also a danger that the wings of the soul will be clipped, because intuition and divining power are now at their very best and are no less in need of

exercise than are plodding and cautious ways. Nothing of this kind can ever be more than an unsatisfactory torso unless it is supplemented by high and hard thinking, and unless all the philosophy at the youth's command is diligently brought to bear. A little of the prejudice against speculation, which is merely looking about and looking into, must be uprooted, and the ideal Ph. D. thesis that fits the nature and needs of youth rather than the demands of science would always have two registers, one for discipline and the other for the highest and best expression of the way in which individuality reacts upon the work in hand. I have often encouraged young experimenters in psychology, whose themes or ideals were too severely inductive, to add a few paragraphs or an appendix to their thesis in which to state ideal suggestions for future workers; ulterior problems that had arisen in their own minds; allusions or implications in the whole humanistic sphere; or the bearings of their work upon the highest philosophical themes of evolution, or even religion, in order that they might vent, and the reader see, the underlying motive-power of interest that had animated their labor.

This is the age when in matters of the soul the very guesses of elite youth are often more precious than the tripply distilled products of the laboratory. Not to utilize its power of divining is for youth to renounce its heritage. To be intimidated by the severe logic of science is for the good servant to mutiny and subdue his master. To falter because a broader basis of fact is desirable, or with the fool's hope of more leisure or incentive later, or that greater maturity will bring insight with increasing years is not only a mortal sin against the scientific imagination, but it sterilizes the buds of originality and executiveness. Of the two things that rouse my hottest and most righteous indignation, one is for a young investigator in a new and rich field and with whom I have often worked, to hand me at the end of the year a paper of dry pragmatic details from which every generalization, suggestion, list of probabilities, and everything that could betray the hopes and motives that animated all his drudgery is absent and which suggests only the processes and results of a very complex automatic machine. Whether old or young in the field, and whatever may be the case in other sciences this is not psychology but senility and degeneration. These mechanicians have probably their place in the economy of research, but they are only the ultra formulists, and in all the scores of psychological dissertations of this type, not one represents any marked progress. It is this spirit, too dominant in our academic chairs, that has made psychology take (in so many ways) a position ancillary to physical science, physiology, physics, chemistry and morphology, when it should

now stand squarely upon its own feet and work by methods indigenous to its own field. But this is another matter.

The literature of laboratory psychology abounds in studies based on simple enumeration, and that of child study is no better. In the one records or measurements, and in the other returns are made into tables or curves, which seem to be regarded as something holy and fetichistic. All this matter may be and often is extremely suggestive and valuable, but much of it consists of only the mud sills of possible superstructures, which are abandoned. The instinct of excavating and laying careful foundations and then deserting the building at any stage of incompleteness for some one else to finish, or in the hope that the material will be bodily taken and used in some larger edifice, is a psychosis peculiar to induction. The counters, photographers, and tabulators, like the reporters of many isolated medical cases that abound in the periodical literature of that profession, seem to labor in the hope of a coming redeemer, who will gloriously fulfill and supplement their work, and by whom all its defects will be clothed upon. Indeed Bacon, the great father of empiricism, in his *Silva Silvarum* was very fond of this sacramentalization of the formic *Sammeltrieb*. These scrappists confess their imperfection, but patiently await the great systematizer who, when he comes, will cement their humble tiles into a great mosaic temple, to the glory of which it will modestly contribute. They forget that the smaller the fragment, the sooner it grows obsolete and decays. They are recreant to the high duty and vocation of the true savant; to try and know everything possible on the subject he has chosen and then to think with his strenuous uttermost tiptoe reach until the larger relations in which everything lives and has its being begin to be apparent.

In their study of telegraphy, Bryan and Harter showed that the learner may reach a kind of saturation point on a level below that required of operatives and above which no amount of regular humdrum practice can raise them, but that in such hide bound cases a long intense cram with extra hours and exceptional conative energy breaks the charm and brings them to a sudden and sometimes great increment of maximal speed, so that their entire efficiency is permanently increased. This is the analogue of what ought to occur near the last stage of every attempted investigation on the part of a student. He must throw himself with all the momentum of which his mind, heart, and will are capable upon the subject with no reserves, but with utter abandon, with the fever of second breath, and he will at once begin a new and higher intellectual experience, and will often thus mark an epoch in his intellectual development. It is in this kind of forge and heat that most of the

great discoveries have been wrought out, and those, whose constitutional inertia or whose psycho-physical organism is such that they cannot scud for a time with all sails set and every cord tense without danger, must resign themselves to the career, it may be, of men who are good, but they never can attain that of men of the best quality.

The same is true where themes or theses require wide reading. Here too, a larger human environment and a wider experience is sought. It is a great power to be able to read persistently, for this means taking in others' thoughts unchanged, appropriating the wisdom secreted from other lives and works, and although it is less completely assimilated than what we learn from our own lives it is really life by proxy. The man who truly reads does not have to learn everything for himself, but can profit to the full by the advantage of what others have learned, and can live in other ages, departments, and racial consciousnesses. To read is to gather up thoughts, impulses, and resolves, and to both feed and fire the soul thereby. Interest and curiosity, which are the same thing as philosophy or the life of wisdom, constitute the impulse. This is to read well and wisely and with an exquisite mental olfaction that always finds its way, by some spiritual sense that may seem almost indescribable to those who lack it, to precisely what is necessary. But reading too, may be a mere accumulation or may only etch or veneer the soul with learned citations and pedantries, which in days of superficial scholarship have been the ear marks of learning. Complete reading is digestion and assimilation. The processes of higher apperception are chiefly taxed, and the objects apprehended are speedily made over into the power that apprehends.

Here again quality tells, and groups of men are differentiated—the masters of knowledge from its servants, those who truly know from those whose minds are mere memory pouches. The masses gather at the feet of the mount; some ascend a little way, but only the few elite can scale the summit above the clouds and bring down the divine tables of the law for those below. As in physiology so in education, we have every type of mental dyspepsia. Some omnivorous maws digest imperfectly and on a very low plane, while mental eupeptics who assimilate on the very highest plane, who distill true culture from the bins of knowledge, a culture that refines and sublimates the soul and the very body itself, so that its effects are transmitted by heredity:—these are they who inherit and in whom are fulfilled all the promises in the field of learning. Such minds scorn the luxury of merely knowing by imbibition; they want no alien thoughts; they have a most sanitive sense of eschewing every study which merely blazes new paths

which are not to be opened up and made into finished highways over which the daily traffic of thoughts, easiest and quickest thought, and of deeds done by second nature as surely and effectively as those done by instinct, is to go. If they do not realize, they at least exemplify that there is a true aristocracy of mind above all the peddling knowledge of the schools, that examinations can never give nor test, and which may exist with or even without them. Diplomas, inscription-books, full sets of notes, academic degrees, etc., may well designate only a knowledge that is perhaps superficial and even vulgar, and may be obtained by the upstart *nouveaux riches* who are not used to it; who are made self conscious, conceited, and unpractical; and who perhaps have given in order to get it the very best endowment of man, naïve and intuitive wisdom and the sound, infallible common sense, which is the muse of American manhood and womanhood.

The psychic wreckage of education illustrates the dangers and disasters wrought by great ideas and facts in little minds, and there are many students at all stages, in my humble opinion, in every modern community who would be better morally, healthier in body, and more wise in all the higher meanings of sapience, if their souls had not been made rily at the bottom or frothy at the top by over education. Blasphemous, though it may seem to the stump orator and the hack writer in the pedagogic guild, I maintain that there are many children in every community who would lead happier lives, who would be better in health, more useful citizens, had they never been to school at all; that many others are injured far more than they are benefited in all these respects by the high school; and I even risk the awful charge of heresy, if not anathema, by maintaining that there are boys who ought never to go to college, and that there are bachelors who should never enter the professions or the university, both for their own good and for that of these institutions.

One of the great currents of contemporary philosophical teaching aims first to clear the mind of all the crude and inadequate religious conceptions of childhood, and then to lay deeper foundations on the basis of a critical examination of self, of the external world, or of the fundamental principles of knowledge. Its goal is generally attained when the adolescent realizes that his entire world is only himself projected, and from the postulate of reality now most frequently construed as activity or will, a new heaven and earth arise out of chaos. This involution of consciousness and re-evolution of the objective world gives keen pleasure to the faculties at the stage when young men are constitutionally prone to vast, vague, and

voluminous states of consciousness and love hazy, dreamy views. It flatters as nothing else ever has done the individual ego, which now feels itself at the very center of gravity of the universe, but does not realize that it is dangerously balanced equi-distant from all point of contact with life. The persistent echoes in the soul of the myriad ages of adolescent initiation in unnumbered past generations, give to youth, who have been subjected to this discipline, a sense of esoteric superiority and of finality which causes a peculiar psychosis of arrest. They have seen the ultima Thule, have been through heaven and hell, and found some measure of satisfaction in having attained ultimate and superior insight.

But alas for many this is a slight inoculation against the deeper love of knowledge and should not be called philosophy, because the love of wisdom which this name signifies has been assuaged by possession. They no longer woo but have married the muse of wisdom and have settled to an humdrum but barren and self-confluent life about her own hearthstone. Many drift into a refined indifference to all passionate interests, and those who work long lay down laws to the special sciences by virtue of their assumed superior acquaintance with cause, time, space, the nature of experience, and truth in a speculative arm-chair way, interesting to others who are touched with the same type of paranoia, but absolutely without influence and generally voted rather ridiculous by the hard working men of science, who in the laboratory and the field struggle fist to fist with the hard facts of the world.

The root trouble with these cases I have come to believe is mental inertia. This is the most refined modern form of the self indulgent laziness, which prefers to speculate and will not work in the rigorous sense of that word. These are they who Plato said should be whipped if they persisted in philosophizing in the top lofty way which paralyzed action. No one felt more strongly the necessity of a rigorous course of philosophic thought, but no one so clearly saw how perilous it could become at this age so prone to mental inebriation. For all it is like migration to a new land, where the best grow stronger and the weakest are lost, and where the average man is doomed to forever remain as he is, because he is made complacent with his mediocrity. I maintain, therefore, that this course has its place, but that nothing in the whole curriculum of learning so needs the most careful individual adjustments and should be administered in doses all the way from large to nothing, with a tendency always toward less than toward more.

I have had a long experience in trying to infect able young men well trained in this direction with a love of some detailed, objective and experimental investigation, and believe that the

conversion of a hardened sinner is not more difficult than this. Theme after theme, most carefully chosen with long considered, individual adjustments, has been temptingly suggested; often the preliminary work involving weeks and even months of hard labor has been given, and there is nothing to do but finish it, and often the attempt has been honestly and sincerely made, but generally in a short time the interest languishes, and this is generally shown by drifting to some other theme, thought from the student's philosophical standpoint to be more solvable. Often utterly unpractical and always far too vast subjects are chosen by such men. Where they can be narrowed to some extent, they often regard as an incident in their work the mastery of departments within which many men have wrought a life time and always felt too great for them. Near the end of the year with the spring unrest, the fatuity of their quest is sometimes realized and there is deliberate and intended miscarriage. Rather more often the results of a rather voluminous reading are skewered on a slender thread of ideas in the easy form of an essay, sometimes felt to be a larger view offered to the drudging "scientist" like the golden crown over Bunyan's man with the muck rake, which he, poor devil, will not look up to see. Sometimes the end is a plan for work in the future, a book to be evolved when one is settled in some professorial chair, or a course of lectures to be given later and an inane programme, used to keep up the delusion of omniscience.

In other cases a speculator has the background mental perspective dimly to feel a gleam of dissatisfaction with his precious investments of time and labor in the past, or else has the intuitive power to catch some quick insight into the importance of some theme properly commensurate with his powers; and if he has health and perseverance to work this out thoroughly and completely to throw himself with fervent heat into all its details and to add or even to think that he adds something new and valuable, he then becomes a changed man. His strength is doubled. It is not Antæus touching the ground, but two firm foundations—one on the concrete and empirical, the other on the theoretic base from which a high arch of promise can be reared. A man well balanced between these two tendencies is strong by nature and now more than doubly strong by training. Such men are rare as they are precious; and both the theoretic type and the empiricist, who ties himself closely down to the exact facts, are abnormalities, and especially are not fitted when in academic chairs to exert a sound and inspiring influence upon young men.

My other maddening provocative of ethical and scientific indignation then is the naïve assumption of lofty wisdom and deeper insight due, when psychologically explained, to the

very same diminution of power or of the feeling of necessity of grappling with facts and details in the world of sense, which causes the delusions of greatness in the early stages of general paresis. It is this that keeps epistemologists from "losing face," as the Chinese say, in entering into all fields and discussing the ultimate principles of all sciences. They point out to the chemist the degree of credence that he may be allowed to attach to the doctrine of atoms, and show him the danger of pushing his hypothesis beyond this, that, or the other limit. They inform the physicist what the doctrine of force and the dynamic view of the universe or the theory of ether really means. They announce to the biologist the tenable and untenable forms of the evolutionary theory which he may be allowed to hold. The theologian is told what God truly is and how he should be conceived and how proven. They patrol the field of neurology, proclaiming to the toilers that however far they push their resources, they can never by any possibility contribute to our knowledge of what mind is, because it is incommensurate with matter by this, that, and the other token. The mathematician is tutored as to the ultimate nature of space, time, motion, axioms, etc. The laboratory psychologist is taught the logical principles by which he must proceed, and shown the adamant limits that fate has fixed to his methods. The genetic student of mind is reproached for his interest in concrete items, and his cause is non-suited on high *a priori* grounds. Formerly, these introverts slaughtered Herbert Spencer and showed Huxley what a poor Richard he was, and I have about two shelves in my library devoted to the philosophical annihilators of evolution. Now they make forays into the field of education and find everything sadly in need of their enlightening offices. Perhaps their central province is now assumed to be the retelling of the story of Locke, Berkeley, Hume, and Kant, with endless variations, with a salvation motive of rescuing those infected with the awful epistemological spook of doubt. Formerly, heroes undertook romantic Don Quixote excursions to rescue imprisoned maidens from Don John towers or subterranean keeps. These romanticizers with ideas now sally forth to rescue academic youth from the clutches of the dragon of scepticism, and their story is of his awful ravages; of following his traces to his inmost lair; finding his one vulnerable point and planting deep in his heart the lance of triumphant vindication that "being doth be." Like the old sun god heroes they go down to the lower world of Hades, where spirits are imprisoned, and come forth out of the mouth of hell, followed by troops of jail delivered souls saved by the newest and shortest of all ways out of agnosticism.

These redeemers do not see that at its very worst, the doubt

they fight is a merely transient occasional phenomenon due to a narrow and now obsolescent orthodoxy, which has its ideal field only where the religious atmosphere of youth has been close and stifling; that the many isms and philosophical heresies which they impugn are for the most part not represented in actual and least of all in modern life, but are the poses of theorizers in the past, partly temperamental and partly literary, and to be treated only as the critic treats the productions and schools in the field of art and letters; that if they have saved souls, it is only souls whom they had first placed in jeopardy. The "reality," which is the Holy Grail of all their quest, is a far less real and a practically less important thing than the quidity of scholasticism, because that was the basis of the mediæval church, when it was the basis of every social and political institution. But their ratiocination is essentially that of the sophists of ancient Greece, although the modern sophist finds himself in an intellectual world far fuller, so that his work is more negative and far less often constructive.

Students of this type generally have more power to think than those who are extreme empirics and experimenters, so that if they can be taught to work by this latter method they are more likely to do service. They are also, perhaps, on the whole more easily brought to thus supplement their one-sidedness, because the limitations of the empirics are more often due to native lack of ability.

Besides the incorrigible epistemics, however, there are those emerging from the shadow who are weary of *a priori* constructions, hunger for a more concrete field, and drift to various things. Sociology, especially in its present, unsettled, and suggestive stage, is attractive to their vast and voluminous states of mind, where they soon crassify either to vast and harmless speculation or to extreme and special theories, where they find gratification for the passion to express their unique individuality by working their way to some very viewy view all their own. Some of them find the best vent for their instinct in re-expounding Dante, Faust, Greek tragedy, art; or reveal to the Browningites the awful mystery of what their master really meant; or peddle the views of Nietzsche and Ibsen, or explain what has hitherto been inexplicable about music; or lecture on vast ethical, æsthetic, and social themes with fervid and lushy platitudes, which they wield as if they were Excalibur blades slicing monstrous foes invisible to common mortals.¹

I believe that no one has much knowledge of the inner work-

¹ See the author's article, entitled "College Philosophy," in The Forum for June, 1900.

ings of his own soul until he has served an apprenticeship in the psycho-physical laboratory in the study, under exact conditions and with apparatus, of some problem involving sensation and some of its immediate reactions—attention, memory, feeling, choice, or association. This lays bare the geology of the soul, in a way compared to which all the dissections of consciousness by unaided introspection is only surface or cadastral mapping. The new method is to the old in some fields almost as the microscope, which has created so many new sciences of what no one ever saw before, is to the natural eye.

The main point is that every mature special student in this field must not stagnate or harden in mind too early. Save in the rarest cases of a special coincidence between talent and academic environment, it is a bad sign for a young man to remain in the philosophical attitude or position of one school or of his last instructors. If, under these influences, he gravitates to empiricism, it is arrest, and it is real progress for him to experience a gradual change to interests involving more speculation; while if the latter has predominated, a change in the opposite direction is no less truly progress. Hence to pry young men off the rocks and shoals, where their environment has stranded them so that they may float off on deeper currents into the great open sea of truth, is often the truest service. Thus the real pedagogical shepherd of souls needs to be almost a materialist to the superattenuated spiritualist, an epistemologist to the unphilosophical laboratorian and abject worshipper of methods too exact for the nature of the subject. He must complement and supplement past influences and present tendencies, perhaps on the whole more often than he must re-enforce them.

There are thus two kinds of self knowledge—one more introspective and deductive, and the other more objective. The one starts with ideas, categories, substance, cause, matter, force, virtue, etc., as ultimates (as theology assumed the Bible to be the final *verba ipsissima* of God), and explicates experience, persistently assuming certain primal conceptions as major premises which can never be analyzed. The other prompts the modern psychologist to know himself in a more inductive way. He would like to trace his pedigree through all his multiplying ancestors and know all the kings and murderers we are told we all have among our forebears. He would go back of the human stage and ferret out the roots of his descent as far back toward the primal cosmic gas as possible. He seeks to know all he can of the early character of his parents, their courtship, his own prenatal life; wishes that his infancy had been studied as was the child of Preyer or Miss Shinn's niece; would have jotted down his own autobiography recalling the

many facts, clear to the memory at 14, but forgotten at 40; would have been the subject of every laboratory test practicable, and know his rating on the scale of color, fatigue, concentration, etc., as athletes prize their record. He would have been studied without undue intrusion into his personality, as Casper Hauser was, or subjected to as wide a circle of anthropometric tests as Zola has been. He would know the fears and hopes of his parents when he was young, and their grounds; would have confided to paper the ideals of every stage of life for maturer study later; would face frankly all possible records of ill health or moral perversity, and not ignore the sad might-have-been's at the critical points of his career; and then, perhaps, after having attained the maximal self expression continued into a ripe old age, ever reflecting from a higher standpoint the achievements of the next lower perhaps even bequeath his brain to his expert friends to aid in pointing the moral or drawing any lesson from his life, regretting only that he could not himself somehow survive to be present and share the interest in his own autopsy. Something like this would perhaps be the modern form of the noetic passion, if in our day it took the next step in the way a new Aristotle would now do. One need not insist upon the platitude that the completest record of the meanest life that realizes this ideal would be the most precious thing in the world of science, or repeat the old and one-sided saw that there is really more wisdom in a cell of Plato's brain than in all his works; nor need one be overwhelmed with the pessimistic suggestions that this kind of self acquaintance, if complete, would make so patent how infinitely larger, better, wiser, he might have been, than he is. Such dreamery may at least serve to show that the ideals of objective are no less comprehensive than those of subjective self knowledge.

The modern psychologist is also to some extent a naturalist. Every unique personality, manifestation of genius, moral and mental inferiority, children, savages and primitive people if he comes in contact with them, and in a special sense animals, including birds, insects, reptiles, not only wild but domesticated species, have a somewhat different interest to him than to others; for to his mind, all their ways and life, history shed light on the great problem of the psyche in the world, of which his own soul is one manifestation higher in many but lower in other respects. Perhaps psychology raises the interest in life which all feel to a higher potency and intensifies the desire to see, know, touch it at every point, to enlarge our experience as far as possible toward becoming commensurate with that of the race. It tends to regulate grief, love, fear, anger, by making them objects of intellectual interest even at their

acme in our own person. It makes the adept at home with and lord of himself, although none so passionately long to have lived in all times, seen all events and to have exhausted every possibility of human and even sub-human experience. Indeed, so world wide is its domain that to take psychology as one's department often seems to me to involve in itself almost a delusion of greatness. Already different workers in the field have drifted as was inevitable so far apart, and all upon permissible and legitimate ways, that we are hardly in hailing distance of each other, and those strong in some departments are thus by no means more competent to pass critical judgment upon the work in other departments than mathematicians are to evaluate the work of chemists.

Thus, in fine, we conceive the function of the psychologist today, who is smitten with a pedagogical passion of helping young men to the fullest development of their power in his field, as being largely a twofold office. He must ensure to those prone to dwell in the material field of sense and empiricism another citizenship in the realm of the ideal, and, to those who by nature and training are in danger of a similar provincialism in the field of deductive or ideal methods, some mastery in the field of objective and inductive or genetic mind study. Such a teacher must be idealistic in his strivings with the one, and perhaps materialistic in his influence upon the other. He must himself be well poised in sympathy between the two almost as with a dual personality, or better yet he must strive to dwell in the higher region where this great practical antithesis is sublated into unity.

Both at Johns Hopkins and at Clark, I have repeatedly had periods or seasons of personally conducting excursions of my students to various institutions, where I have usually gone beforehand to prepare demonstrations. At blind asylums we have asked teachers to exemplify their methods or have spent a day questioning pupils and perhaps testing their senses, observing them at play and work, and individual students have been directed beforehand to observe in special directions. The same has been done in the institutions for the deaf, for the feeble-minded and idiotic. We have visited reform schools, and in some cases have had access to prisons, although profitable work here is far more difficult. For years I conducted a Sunday class of about thirty men in the Baltimore city prison, where I was able to secure the confidence and good-will of the inmates, some of whom were not only ready but glad to talk of their views of life, of society, penalty, and some rare cases have been ready to speak freely about their crimes. We have made excursions to Boston, Philadelphia and Washington for this

purpose, and not infrequently these visits have resulted in opening these institutions for more special studies later by individual students. In insane asylums I always carefully selected and grouped patients for my psychological clinic in advance, and have held it in the less disturbed wards or in the chapel, selecting one or more sessions each for epilepsy, paranoia, paresis, hallucinations, dementia, mania, melancholia, etc., only after I had given a few lectures upon each of these topics, some knowledge of which I deem indispensable for every student of the mind. This psychological field work has given to pedagogues, philosophers and theologians, some slight glimpse into large fields, most of which, perhaps, they will never know more of. But although the effect be not tangible in the way of productivity, it gives a wholesome and concrete direction to thought, and teaches respect for special and professional knowledge which the metaphysician is so liable to never learn. The greatest good for the greatest number has probably been secured by visits to the associated charities, the orphanages, foundling homes, and poorhouses. I have collected abundant autobiographies with the aid of attendants in some of these institutions, particularly the poorhouses, that have tended to give minds of both the speculative and the narrow cast in the fields of sociology, philanthropy and education a wider or more practical drift.

I have always lectured on the history of philosophy, generally turning over my barrel every three years. This was my first love, and I have always insisted that it should be at least a minor for every Ph. D. in my department. This I have done because I have felt it the most enlarging and necessary point of view that I was able to insist upon for psychologists, who might thus be safe-guarded from the narrowness of the laboratory. In the early days I worked according to the Hegelian assumption that the systems developed one from the other in such a way that the chronological and the logical order had some degree of coincidence, but with every repetition I have felt more and more dissatisfaction with the current manuals and histories of philosophy and an increased disposition to treat the whole subject as literature rather than as dogma. Most of the ephebic wiseacres, who have dealt with this subject, have, as I think, conceived it too narrowly and been interested almost solely in the ethical or epistemological aspect of the subject. Most of them perhaps know Kant's critiques best of all, but very few of them have read his other writing on scientific and miscellaneous topics, which make up in bulk the larger half of his work. They all understand Plato's theory of ideas as interpreted by his chief exponents, but very few have read even in Jowett his minor Dialogues or have felt the Republic

to be of equal interest with the more abstruse Theatætus, Parmenides, Pythagoras, etc. They know most of Aristotle's Organon, but few have as carefully studied De Anima, his Politics, Rhetoric, Doctrine of Nature. Even those who have had a little interest in all the works of the great thinkers have rarely widened their ken to include the contemporary history of science, medicine, literature, or culture generally, as really should be done in order to understand and explain, according to the higher demands which psychology now lays upon the historian of philosophy, each great thinker from his environment.

This, I conceive to be the goal, and it will be attained only when philosophy in the narrower sense in which its histories are now written is broadened into the comparative psychology of philosophers, which considers their lives,—where they led lives of significance,—and their entire *milieu*. In recent times we see already more specialized or generalized treatment (*e.g.*, Teichmüller, Jackson, Höffding, the Blackwood Series, etc.), which suggests a tendency in both these directions, so that the work of Schwegler and Weber and their ilk, although perhaps not passing, is being relegated to a more elementary position and a more one-sided treatment.

When my scientific colleagues suggest that the history of philosophy is no more important for a true psychology to-day than is the history of chemistry, mathematics, physics, etc., for these sciences, I reply first, that I would have the histories of the latter always taught in every university department, and second, that while the history of philosophy is not philosophy, as Hegel claimed, it should play an incalculably more important role in the training of the young adept than the history of the sciences in training of those as specialties. In a word, the history of philosophy has too often been taught in a narrow way, which must now be transcended. Just as history, which used to treat only of kings, dynasties, and battles, now studies every human institution and the lives of the people as far more important; as literature used to be perused only as a magazine for quotations and learned allusions, but is now treated as a development and expression of a period, so philosophical history, if it would not lag hopelessly behind, must profit by these examples.

In fact, I am almost tempted to go further and to query whether the ideal of the scholar as the man who merely knows a large body of any kind of knowledge is a normal type of man; whether he is worthy to be held up as a model to the young; or whether he is rather to be conceived as a miser or a mere anti-quary, unless he uses the material with which his mind is stored as apparatus for additions to the sum of human knowledge, unless he puts his intellectual possessions to work. May

we not go further and ask whether useless knowledge, as we now understand the psychology of knowing, is not an encumbrance from which the mind should be freed as far as possible, and of which it should be cleared for action; and whether mere bookishness is not always pathological. In university faculties, the observation has been very often made, that graduates, who come from colleges with the highest standards of attainment as tested by examinations, are less disposed to attempt original work and are less successful when they do so. They have been trained in receptive processes, and it is a serious question whether examinations do not tend directly to prevent knowledge from striking deep root and to delay it in the "memory vestibule." If this be true, they are a distinct hindrance to the assimilation of mental pabulum. Experts are agreed that in the development of the power to draw, children reach a stage where too great familiarity with pictures has a distinctly depressive influence.¹ They lose the power to create or even to copy at a certain stage, because they feel the disparity between the best that has been done and what they can do. The same may be true of learning and originality repressed by too much knowledge. The vaster the appreciation of the body of facts and sciences, the greater the difficulty in focussing upon one thing, and the more disparagingly high are the standards set. True learning should stimulate and not paralyze the active powers. A book should not be a drug, but should be an explanation of experience. Other people's ideas should not muddle the brain but should bring access of power, if all the stages of appropriation are completed. To send graduates into the world with a sense of oppression in view of the universe of knowledge is as bad, perhaps, on the one hand as it is on the other to dower them with the fatal sense of finality and attainment. The characterization of a scholar as "widely read" I hold to be a compliment of doubtful value. The all important thing is to have brought him down from the highland of childhood into full view of the great sea of nescience with some motive to explore it or to build out the mainland ever so little into it. This is more important than to know the just configuration of all the continents of science that have emerged from the primeval sea.

Some of the devices I have described have been adopted more or less tentatively and incompletely, and yet await a full realization, but all have been earnestly tried and most, I believe, have a future. The very best of them, however, I am convinced are almost impossible with large numbers. It is from this standpoint that we can best see the advantages of the

¹ Lukens: Die Entwicklungsstufen beim Zeichnen. Die Kinderfehler, Vol. II, p. 166.

small institution and small classes for advanced work, which, if successful in any high degree, must always be personal and permit free and almost daily intercourse between teacher and taught outside the class room. Students must be almost as much at home in the library of their professor as in the department alcoves of the university, and he must set apart a few hours each day for personal work where it is most needed. Not only the student, but I believe the professor, loses much that is best where most of their contact is in the class room.

To one familiar for years with the topics which consume most of the time of faculty meetings, with the discussions in associations of colleges and high schools, or even in the conferences of colleges, many of the problems here touched upon are new and full of promise. I have tabulated all the topics discussed for a series of years in one of the latter organizations and find the vast preponderance of time has been spent in discussing questions of preparation, discipline, or points involving competition between rival institutions. Useful and important as these themes are, they should have no place in the association of real universities. Science and learning must be independent of preferences for or interests in localities or institutions. The dominant questions should always be how best to promote the interests of the best men; how to advance research; how not to interfere with the free work of natural selection by the prizes of fellowships, etc., so that each student shall find his way to the academic environment most stimulating and salutary for him; and if these notes contribute in the faintest degree to this higher field, where the mere administrator has little place and the investigator should always come to the front, they will have fulfilled their office. The problem here is nothing less than how to advance the kingdom of man; bring in a higher level of expert training; prepare the way for the superman that evolution intimates we are to await; enlarge academic freedom by the same facility of student migrations between institutions as formerly between professors in the same institution by the elective system; secure the same stimulus among the most eminent professors in the few highest institutions as was felt when college options gravitated away from the dull professors, so that the graduate who intends to go farther will feel that there is an organic unity between all the best institutions of the land and that his true *Alma Mater* is henceforth where he can do the best and most for himself; that greater care be exercised than is now done in some institutions in the selection of young men to be launched upon professorial careers, and that the doctorate of philosophy be made the most ideal intellectual honor that the older can confer upon the younger generation of scholars.

BOOK NOTES.

Sanity of Mind. A Study of its Conditions, and of the Means to its Development and Preservation. By DAVID F. LINCOLN, M. D. G. P. Putnam's Sons, New York, 1900. pp. vi-177.

This is a brief and popular account of the nature and conditions of insanity, especially in its relations with education. The author is one of the pioneers in that large and fruitful field of pedagogical hygiene connected with the science of growth and development.

The article is frankly optimistic. The mystery and the power of heredity are candidly recognized, but emphasis is rightly placed upon environment. Heredity is plastic; our progressive mastery over the facts of life and mind endow us with a constantly increasing measure of control over the conditions of physiological and moral ascent. "Childhood offers possibilities in the way of *education for sanity* that are little appreciated." There is "reasonable promise of large diminutions in crime and insanity." "There is a tendency in things to spontaneous improvement." "The ruin of the 'first generation' is balanced by possibilities of redemption and the disappearance of taint."

The duty and privilege of elementary education is so to reconstruct itself as to organize and employ with wise husbandry the forces that make for sanity and progress. The book is essentially a discussion of some educational foundations.

Chapters I to III consider briefly the nature of Mental Derangement and Degeneracy. The treatment displays familiarity with the data of modern psychiatry and robust good sense in appreciation. Heredity is largely a matter of tendency. The *fatal necessity* of insane entailment is often greatly exaggerated. Behind heredity is continuity of cell-life and its associated potencies. Degeneracy is consequent upon noxious influences or deprivations working upon the organism, perverting or depleting the primal energy. It is a generalized expression for a considerable number of ill-featured disorders and symptoms. Susceptibility to slight and temporary mental derangement is almost universal; to graver disturbances (insanity), rather general.

The last three chapters, Education, Self-Education, and Social and Civic Duties, cover two-thirds of the book, deal distinctively with educational problems. Wilhelm Meister's, "Alas! how much there is in education, in our social institutions, to prepare us for insanity" is met with the strong counter affirmation. Education on the contrary, should prepare us for sanity. Education is the dynamic part of environment. The author seeks to show some ways in which mental soundness, strength and stability may be influenced favorably or the reverse, by early training. He states succinctly but clearly the phenomena and significance of growth. The more common neuroses of development are described. Some of the essentials of pedagogical pathology are noted. Such affections as phobias, morbid apprehensions and immoral propensities are usually traceable to morbid heredity rather than to over-work or fatigue at school, but sound educational regimen can do much towards check-mating bad heredity.

This book is sound in method and wholesome in tone. It cannot fail to be of value to intelligent teachers, clergymen and that large and (happily) increasing class of parents who are interesting themselves in the scientific aspects of education.

W. S. SMALL.

Annual Report of the School Committee for the year 1900, Passaic, N. J., Frank E. Spaulding, Supt.

Annual Report of the School Committee for the school year 1900, Andover, Mass., G. E. Johnson, Supt.

Annual Report of the School Committee for the year ending Dec. 31, 1900, Whitman, Mass., W. C. Hobbs, Supt.

That an important function of the school superintendent is to give instruction in educational matters, not only to the teachers under his charge but also to the parents of the school children, is now recognized. The annual report of the school committee offers an opportunity to present educational truth to the community that is not neglected by the best superintendents. The reports of the Chicago Board of Education for several years have contained an account of important investigations by experts in regard to the physical condition of school children in that city. A few recent reports from smaller places contain contributions to education that deserve special note. Among these are the ones here mentioned.

Dr. Spaulding discusses the aims of education, and presents also a full and systematic plan for the study of children in the schoolroom. The rubrics cover not only the child's physical characteristics but also his mental and moral characteristics and home environment. Mr. Johnson discusses the stages in a child's development, presents data in regard to the relation between physical development and mental ability, maintains that the early period from three to eight should have all conditions favorable for physical growth and activity, that motor training should have a large place in the early years, and that the general physical condition should be regarded in matters of promotion and the like; and, on the basis of his study of the periods of development, he submits important concrete recommendations in regard to grading and school work. Supt. Hobbs devotes a number of pages of his report to an interesting presentation of facts in regard to the importance of ventilation in the schoolroom.

These reports are quite significant of the present movement in education. It is becoming necessary that the school superintendent should have something more than merely political and clerical ability. It is demanded in the most enlightened communities that he be also a trained expert in education; and, on the other hand, the wise superintendent sees that sure progress must come by the education of public opinion so that reforms may commend themselves to an enlightened community. The day of dogmatism or blind appeal to custom in other cities is passing and the superintendent must now give a reason for changes proposed. It is not too much to ask also that superintendents should utilize the opportunity they have, to make contributions to the content of pedagogy. Each year experiments are likely to be made, or the from observation and experience of certain teachers important results of general pedagogical interest appear. These should be printed in the annual report, and each superintendent should feel that he owes a duty to pedagogical science as well as to the locality where his work is done. The reports mentioned are especially commendable as illustrations of what it may be hoped will soon be expected of all superintendents.

W. H. B.

The Propensity toward the Marvellous. Animism in Popular Thought and in Science. DR. ERNEST MACH. Open Court, Vol. XIV, 1900. 539-551.

The novel and imperfectly understood solicits attention, the ordinary is unnoticed. The beginnings of physical science were associated with magic, there was always a temptation to derive profit—to gain power by keeping the facts of science secret.

A marvel is to be sought in the mind of the person observing the event. His mode of thought being disturbed and forced out of its customary channels he adopts extraordinary conjectures—usually fallacious. Science is not yet severed from the every-day world. This is seen in the proneness of certain physicists, biologists and psychiatrists to espouse spiritualism. Some personal observations show that even they are often guilty of taking the phenomenon on the authority of others. The devotees of spiritualism will not believe that the efforts are produced in the same manner as those of the conjurer. In electrical inventions science gives us far greater marvels than the pseudo miracles of the spiritualists. Our knowledge of nature is advanced by resolving the extraordinary into the ordinary. The two operations need not be combined in any one person or any one period. The alchemists produced results afterward valuable in a new connection. Science will be hampered so long as its domain remains the rendezvous of credulous and inventional minds.

The article is exceedingly stimulating. NORMAN TRIPLETT.

Česká Mysl: Časopis Filosofický—Organ Filosofické Jednoty V Praze [Bohemian Mind: a Philosophical Review—Organ of the Philosophical Society of Prague]. Redigují: FR. ČÁDA, FR. DRTINA, FR. KREJČI. Vol. II, No. 1. Prague, 1901.

Zivot: List pro Vychovu V Rodině, Škole a Společnosti [Life: a Bi-monthly for education in the family, at school and in society]. Redaktor: JOS. PRŮCHA. Vol. III, Nos. 3 and 4. Prague, 1901.

Many American readers will doubtless be surprised to learn of the intense activity in Bohemia along lines of pedagogy, psychology, and philosophy. The journals here reviewed are but two of numerous similar periodicals published in the Czech language.

The Bohemian Mind has as its editor-in-chief, Dr. Frantisek Čáda, professor of psychology and pedagogy in the Bohemian faculty of the University of Prague, and whose name is familiar to at least the younger psychologists of our own country and Europe. A brief survey of one number of this well edited review will give some general notion of its character. The opening article discusses with enthusiasm the æsthetical bearings of John Ruskin's philosophy of nature and religion. The second article is by Dr. Oldsich Kramer and treats of the relation of imagination and feelings. Dr. Kramer, himself a former Herbartian, confesses the inadequacy of Herbart's theory of interest, and strongly urges a physiological basis of feeling in relation to imagination. The third article is the first of a series on the ethical principles of Kant in their relation to metaphysics. The fourth original contribution is an interesting article on Agony; a psychological sketch by Dr. Jenista. The author has long been connected with a hospital and the basis of his article is the observations he has made on dying patients. Each number of this review contains a critical survey of the newest literature along one of the following lines: History of philosophy, psychology, epistemology and logic, ethics, sociology, psychology, pedagogy, metaphysics, æsthetics, and the philosophy of religion. The present number is a criticism of the latest ethical literature and is written by Dr. Čáda. The Bohemian Mind is not published merely in the interests of psychologists and philosophers in Czech speaking countries, but as well for all Slavic races, as Russia, Croatia, Poland, etc., and the present number contains an article on the philosophy of the recently deceased Russian thinker, Jos. Miks; also an account of the status of psychology in Croatia.

The second review under consideration is a bi-monthly and is more essentially pedagogical in character. The two numbers contain arti-

cles by Dr. Cada on the psychology of psychology and the value of the same to the teacher in which one finds quite comprehensive summaries of the American studies by G. Stanley Hall, E. Harlow Russell, Frederick Burk and others. Other articles in the same journal are: a translation from Bernard Perez on the feelings of children; Children and the newspaper, by J. L. Paton (from the English), in which the author maintains that newspaper reading by children is absolutely harmful; a translation of Fechner's *Life after Death*; besides short articles on art in the schools, the study of feeble-minded children, and hygienic school regulations. The general impression that one gets in looking over these Czech reviews is most favorable to the scholarship and industry of the young professors at Prague.

WILL S. MONROE.

Outlines of Educational Doctrine, by JOHN FREDERICK HERBART. Translated by Alexis F. Lange. Annotated by Charles De Garmo. The Macmillan Co., New York, 1901. pp. 334. Price, \$1.25.

This is Herbart's latest and most complete work on education, translated and annotated, together with some account of the advances made in educational thought since his day. His writings are claimed by the authors to be practically helpful and systematically complete, but his view, it is said, needs modernizing in the relations of education to society. One of the authors' main purposes is to indicate the new social implications.

Introduction to the Herbartian Principles of Teaching, by CATHERINE I. DODD. Swann Sonnenschein & Co., Ltd., London, 1898, pp. 198. Price, \$1.10.

This is another book of Orthodox Herbartianism, with a two page introduction by Rein, a number of illustrations, and with chapters treating the aim of education, interest, experience, matter and culture epochs, humanistic and natural studies, association, concentration, method, and an interesting historical sketch of the growth of Herbart's influence in Germany. The author takes the general standpoint of Rein and gives many illustrative outline lectures.

The Principles and Practice of Teaching and Class Management, by JOSEPH LONDON. Alfred M. Holden, London, 1899. pp. 524. Price, \$1.60.

This fourth edition adds copious questions from certificate and scholarship papers of recent years. As we have said in substance in reviewing a previous edition of this work, it is one of the most comprehensive and judicious works in English on the pedagogy of the different departments taught in public schools.

School Management and Methods of Instruction with Special Reference to Elementary Schools, by GEORGE COLLAR and CHARLES W. CROOK. The Macmillan Co., New York, 1900. pp. 336. Price, \$1.00.

The topics are school and home, school buildings and equipments, organization, discipline, general principles of instruction, notes of lessons, readings, spelling, the teaching of languages—vernacular and foreign, history, geography, the mathematical group, elementary science and object lessons, practical or manual topics, school music, and physical exercise. The topics are treated concisely and conservatively, but the English point of view which pervades the book will be helpful and stimulating to American teachers.

Pädagogische Irrtümer in Schule und Haus, von HUGO GRUBER. G. D. Baedeker, Essen, 1900. pp. 72.

These educational errors are classified as pertaining to the teacher

and pupils, parents and children, school and parents, home work, reward and punishment, ideals, and life out of school. It is a contribution of some significance to pedagogical pathology.

The Human Ear: Its Identification and Physiognomy, by MIRIAM ANNE ELLIS. Adam and Charles Black, London, 1900. pp. 225.

These chapters contain a method of classifying portraits of the human ear by which reference for the purpose of identification is made possible and convenient. They also show the value of identification among non-criminals by ways of a minute division of the shapes of the rim of the ear. There are 53 outline woodcuts of ears, and five of the fourteen chapters are devoted to tracing the history of ear physiognomy from Aristotle down.

The Diseases of Children's Teeth, Their Prevention and Treatment, by R. DENISON PEDLEY. J. P. Segg and Co., London. pp. 268.

The important chapters in this book are devoted to caries, pulpitis, periodontitis, irregularities, and hygiene of the mouth in home and school. The work is illustrated by 99 cuts.

Our Teeth and How to Take Care of Them, by VICTOR C. BELL. (Young America Library Series, No. 1.) Young America Publishing Co., New York, 1900. pp. 70.

Notes on School Hygiene, by F. B. DRESSLAR. pp. 14. Reprint from the 19th Biennial Report of the Supt. of Public Instruction of California.

The Human Boy, by EBEN PHILLPOTTS. Harper & Bros., New York, 1900. pp. 242. Price, \$1.00.

Here are eleven stories as true to boy life as anything we have had in a long time. They are disconnected, but the same schoolboys often appear in the different pages. Some of the escapades are actually thrilling, and everything indicates that it is all very true to English schoolboy life.

How to Help Boys. A Quarterly Magazine, edited by William Byron Forbush, Boston, Mass., Jan., 1901. No. 2. Price, \$1.00 a year.

The editor of this new quarterly is well known to readers of this *Journal*, and if successive numbers can be kept up to the high level of this, and really include all kinds of work for boys,—Catholic, Jewish, secular and religious, in schools and clubs,—it cannot fail to make an important and influential position for itself.

Evolution of the Individual, by FRANK NEWLAND DOUD. The Reynolds Publishing Co., Chicago, 1901. pp. 96. Price, \$1.00.

This author treats of the natural laws of growth and how to attain mental and bodily freedom. His chapters are child growth and contentment; the theory of vibrations; the seen and the unseen; the checking of growth; love and desire; everyday problems; and the doctrine of love. The book has no index, and to a psychologist seems mystic.

Report of Child Study—Hancock School, by HARRIET A. MARSH. The Fifty-Seventh Annual Report of the Board of Education of the City of Detroit for the Year Ending July 30, 1900. pp. 142.

Miss Marsh has developed in the Hancock School Mothers' Club a degree of practical utility in child study such as perhaps is nowhere

else known, although she has not aimed in all the wide irradiations of her work so much at science as at service. The themes, which have especially engaged attention here, are a flower seed bureau for children; discipline and punishment; foods, their effect on school life; communicable diseases; lies, amusements, pets, and games; preparation for emergencies; destructiveness and its treatment; a postal savings department for children; their clothing, literature, quarrels; adolescence; the cigarette habit; the share of the home in training; the curfew; temperance; patriotism; play and many other topics have also been discussed.

The Biography of a Baby, by MILICENT W. SHINN. Houghton, Mifflin and Co., Boston, 1900. pp. 247.

This little book is by far the best introduction to child study that has yet appeared. In it the author has condensed the most salient and interesting portions of her more technical studies and presented the whole in an unusually readable form. The observations were very carefully and conscientiously made, and the psychological discussion of them here given is both sound and acute. The book is a model of the best sort of popularization. The work first appeared as a series of articles in the *Puritan Magazine*. F. C. S.

Some Incidents of Little Mary's First Years at School. American Annals of the Deaf, March, 1901, Vol. XLVI, pp. 186-217.

Some competent hand, perhaps that of the editor, Mr. Fay, himself, has given us here an interesting study of a deaf child, showing the importance of caring for individuality; the necessity of very great care and leniency in punishment; the need of self activity and growing naturally; the special caution with nervous children; the need of each child owning his own school possessions.

The Child and the Bible, by GEORGE ALLEN HUBBELL. New York, 1900. pp. 76.

This is a syllabus of twenty-five lessons in education designed for Sunday School teachers and parents, beginning with general topics, the aim of education, its religious element, the teacher, man, body and mind, consciousness. It passes to the more psychological themes of perception, interest, memory, thought, feeling, habit, will, and ends with a boy's religion and training a child's faith.

A Beginner's Course in Bible Study, by JAMES MCCONAGHY. East Northfield, Mass., 1901. pp. 122.

This is a tested scheme by a Northfield Seminarist thought to be helpful in Y. M. C. A. work, and consists mainly of questions on the various topics with very brief introductory remarks, review charts, etc.

Proverbs, by WILLIAM HARDCASTLE BROWNE. Arnold and Co., Philadelphia, 1900. pp. 335. Price, \$1.00.

Proverbs are the most quintessential ethics and practical philosophy, and here we have an alphabetical arrangement of them so that one can lean their wisdom upon any topic included in this index.

What Shall We Do Now? A Book of Suggestions for Children's Games and Employments, by EDWARD VERRALL LUCAS AND ELIZABETH LUCAS. Grant Richards, London, 1900. pp. 390. Price, 6 shillings.

This is a book of games for parties, games of drawing, writing, cards, thinking, guessing, for a picnic, a train, the seaside, country, in bed, cooking, gardening, pets, Sunday, reading, etc. It contains a score or

two of interesting illustrations, is well indexed, and has blank pages for the description of other games.

Geography in Elementary Schools, by W. T. HARRIS. Washington, D. C. pp. 8.

In this leaflet, Commissioner W. T. Harris comes to the rescue of geography against what he assumes to have been an attack by G. Stanley Hall, who is, however, not named. The latter had made remarks criticising modern methods and saying that if a serpent could once be thought the appropriate symbol of wisdom, a still more fitting symbol of geography might be found in a sausage. Dr. Harris's reply repeats this in substituting child study for geography in the above quotation. This is neither fair in argument or in fact. In child study a dozen different sciences are focussed upon one definite, limited object. Geography in the sense objected to is universology—a hash of all the sciences that deal with nature, including everything from the center of the earth to the farthest star, the facts taught in fragments, wrested from their logical connections in the sciences where they belong. Hence it sins against the unity of the child's mind, and is a pseudo or pariah science as taught in text-books, unrecognized or actively disavowed by geographical societies.

Deutsches Lesebuch für höhere Lehranstalten, von J. HOPF UND K. PAULSIEK. Grote, Berlin, 1895-97. 5 volumes.

Deutsches Lesebuch für höhere Lehranstalten, published by the teachers of the German Language in the Royal Realgymnasium at Dublin. B. G. Teubner, Leipzig, 1892-98. 5 volumes bound in six.

We have here a complete series of readers, one for each grade in the German gymnasium, from the first year or oktava to and including secunda. In all these volumes comprise 3,602 pages of very carefully chosen matter. The page is large; the paper and binding inexpensive, so that each child can own this library; and the type is a model of clearness. In the lower grades, great prominence is given to saga, legend, Märchen, fables, etc. By tertia these have greatly diminished in number as has the religious matter of hymns, sacred tales, etc., but storiology in the larger application of this term is prominent throughout. All the volumes have a so-called canon of especially choice matter to be memorized, and the extent of this section will surprise American teachers. History, especially in the form of narrative, Völkerkunde, epic and lyric poetry, natural history, geography, savage life, and proverbs, are all represented, and for the last class Greek mythology has considerable representation. It is explained that this voluminous material is to be all read as a part of the course in English, and some of it is made the basis for library and other study. The last volume is devoted to a concise survey of German literature with brief biographies of leading writers. Next to the quantity of matter, the most striking feature of these volumes is the range and judiciousness of the selections. All departments and periods of German history from the Niebelungen down to recent years are freely drawn, and the writers have not scrupled to present digests of longer and standard works that well embody the salient phrases and points of narrative in the originals. Another unique feature is a department of jokes and humorous tales. The work as a whole involves a new and practical solution of the great reading book problem, which cannot be too warmly commended to American publishers and teachers.

The College-Bred Negro. A Social Study made under the direction of Atlanta University by the Fifth Atlanta Conference. Edited by W. E. B. DuBois. Univ. Press., Atlanta, Ga., 1900. pp. 115.

This is a very interesting and comprehensive study of the subject in

a scientific and statistical way. It deals essentially with facts; and is worth many times the three hundred dollars which its investigation cost. It is to be hoped that all the publications of Atlanta University, of which series this is the first, will be as valuable.

The Child-Study Monthly and Journal of Adolescence. Albert H. Yoder, Editor. A. W. Mumford, Chicago, March, 1901, Vol. VI, No. 9.

It is interesting to know that these two journals, one of which has for years represented the study of the first dozen years or so of childhood, and the second that of its later stages of development, have been united under the competent editorship of Albert H. Yoder, whose interest and ability give pleasing promise of a new epoch in the development of the interests represented by both the component journals.

Piero della Francesca, by W. G. WATERS. (The Great Masters in Painting and Sculpture, edited by G. C. Williamson.) George Bell & Sons, London, 1901. The Macmillan Co., New York. pp. 135.

This volume is copiously illustrated with forty photographic reproductions of the author's more important works, all of which are full paged. Descriptions of each of the author's most important pictures and their fate is interpolated in his life in the text. The volume will be indispensable to every student of the history of art.

A History of Rome for High Schools and Academies, by GEORGE WILLIS BOTSFORD. The Macmillan Co., New York, 1901. pp. 296. Price, \$1.10.

This work leaves little to be required in the way of attractiveness. It is copiously illustrated and the scenes are well chosen. It is well provided with maps, reference, helps, questions, index, etc., and in general follows the plan of the author's earlier *History of Greece*. The narrative extends from the earliest time to Charlemagne.

The Teaching of Mathematics in the Higher Schools of Prussia, by J. W. A. YOUNG. Longmans, Green, & Co., London, 1900. pp. 141. Price, 80 cents.

This is a valuable and interesting work by a competent American professor who has carefully studied the German system and given us the needed accessory matter, so that his book might have been entitled—the German system of education in general and mathematics in particular. He treats of the general status of the higher schools, the government, the teachers—their training, examination, appointment, etc., the pupils, the curriculum; and then passes to mathematics explaining the principles on which the topic is taught from the first, the examinations and programmes, an interesting comparison between German and American methods, and with conclusions how to make our own work more attractive.

The Teaching of Elementary Mathematics, by DAVID EUGENE SMITH. The Macmillan Co., New York, 1901. pp. 312. Price, \$1.00.

The historical reasons for teaching arithmetic, why taught at present, how it is developed, been taught, present methods; growth of algebra, why taught, its typical parts; growth of geometry, what it is, its basis, typical parts; and the teacher's book shelf, with considerable attention to bibliography.

The Teaching of Modern Foreign Languages in our Secondary Schools, by KARL BREUL. University Press, Cambridge, 1899. pp. 94. Price, 60 cents.

The writer describes and discusses the English method of teaching languages, pronunciation, spelling, grammar, idioms, vocabulary, reading, classics and methods, with the class, and then takes up briefly the pedagogy of the German language for English pupils; appending a bibliography of fifty pages describing the reference library of a school teacher of German, and adding extracts from the Prussian order of September 12, 1898, concerning examinations in German, French, and English.

The Method of Teaching Modern Languages in Germany, by MARY BREBNER. C. J. Clay & Sons, London, 1899. pp. 71. Price, 40 cents.

This is a report presented to the Gilchrist Trust by its travelling scholar, and is careful and systematic with lists of schools visited and lessons heard, a bibliography, and treats of the school canon, phonetics, the methods of Gouin, Haeusser, Berlitz, the Jena school, and the position of modern languages in the Prussian Lehrplan.

The Origins of Art: A Psychological and Sociological Inquiry, by YRJO HIRN. The Macmillan Co., New York, 1900, pp. 331.

The author is a lecturer at the Finnish University of Helsingfors, and here discusses the origin of art impulse, the feeling tone of sensation, the emotions, the enjoyment of pain, social expression, deduction of art forms, concrete origins, art and information, animal display, art and sex selection, self decoration, erotic art, art as related to work, war, and magic. A copious list of the authors cited is appended. On the whole, this may be set down as one of the most important contributions to the psychology of art of the last decade and should have a place in every library.

A Dictionary of Architecture and Building: Biographical, Historical and Descriptive, by Russell Sturgis. Vol. I, pp. 471. The Macmillan Co., New York, 1901. Price, \$18.00.

This dictionary of architecture and building is a product of joint authorship to be completed in three volumes. The present volume is illustrated by several hundred, fifty of them full page cuts, and the character of the nearly fifty prominent writers who here co-operate with Mr. Sturgis is a sufficient guarantee of the high quality and authoritativeness of this work. To the more important topics brief references are appended. There is no work in English that covers this field except one begun in 1850, which is now somewhat obsolete and inaccessible, so that this work will be indispensable. It is to be sold by subscription only.

Henrik Ibsens Dramen, von EMIL REICH. E. Pierson, Dresden und Leipzig, 1900. pp. 421. Price, 3 marks.

These twenty lectures at the University of Vienna are mostly devoted, one each, to the dramas. The author's previous work on Schopenhauer as the philosopher of tragedy and on Grillparzer had well qualified him for this work. He regards the development of Ibsenism in other lands as marking a new international period of literature.

Autobiography of a Charwoman, as Chronicled by Annie Wakeman. John Macqueen, London, 1900. Price, 6 shillings.

This is a very objective story of the humble life of Betty Dobbs, who was a sunny optimist; loved flowers and music; was full of sympathy for all animal and human life; and was unconscious of her very vir-

tues. It is a very pathetic story of low life in London and profoundly interesting in a large educational way.

Hypnotism and Suggestion in Therapeutics, Education, and Reform, by R. OSGOOD MASON. Henry Holt & Co., New York, 1901. pp. 344. Price, \$1.50.

This serious book discusses the subjective element in the newer therapeutics; relation of hypnotism to the subconscious mind; cases in general practice treated by hypnotism and suggestion; educational uses of hypnotism; forms of suggestion in the treatment of inebriety; six miscellaneous cases treated by hypnotism without suggestion; concerning rapport; and the ethics of hypnotism. The book is interesting, especially to those concerned with the practice of hypnotism for medical purposes, but its critical standpoint will hardly be rigorous enough to satisfy many.

The Theory and Practice of Human Magnetism. Translated from the French of H. DURVILLE. Psychic Research Co., Chicago, 1900. pp. 111.

This mazy, mystic book describes ether, the dynamic theory, magnetism, with a few platitudes, and then describes how to become a magnetizer, and talks of the polarities of the human body. The second part treats of the pass, laying on of hands, fixity of gaze and various cures, and all this in this time of the great new development of physiology and of psychology.

History of the United States from the Compromise of 1850, by JAMES FORD RHODES. 4 volumes. The Macmillan Co., New York, 1900. Price, \$2.50 per volume.

These four volumes are devoted to the history of this country from the Compromise of 1850 to Cleveland's inauguration, thirty-five years later. It is a period that ranks next in importance to that of the Declaration of Independence and the Constitution, and, of course, culminates in Lincoln and our Civil War, and what Mommsen calls "the mightiest struggle and the most glorious victory as yet recorded in human annals." We have no space to adequately characterize this very important work. Its independence in the treatment of Webster, the Kossuth excitement, the Fugitive Slave Law, Sumner, the slave trade and its morals, the Burns and Dred Scott cases, Fremont, Douglass, John Brown, Seward, Jefferson Davis, the literature of the period, McClellan and Lee, the great battles of the War and its leading generals, are all marked by a boldness and freshness of view point which while sure to provoke criticism lends an intense interest to every chapter. The book bears traces throughout of careful familiarity with the very voluminous contemporary literature of the subject and is on the whole, whatever we may think of many of the author's judgments, a monument of careful research by the best approved historic methods and of candid conclusions, so forcefully maintained, that many current opinions are sure to undergo modification.

American History Told by Contemporaries. Vol. 3. Natural Expansion 1783-1845. Edited by Albert Bushnell Hart. The Macmillan Co., New York, 1901. pp. 668. Price, \$2.00.

This is the third volume of a series begun three years ago, and in this time people are more accustomed to the use of original, historic material and there is less novelty in the suggestion that American history may be read in the works of its makers. The largest topic in this volume is the formation of the Constitution. Here, too, the author strives to give a fair representation to the different schools of thought, allowing even the wrong-headed, illogical, and unpatriotic to appear.

From the first date at which this volume begins, the West assumed a life and character of its own, and the author has striven to bring out the abundant frontier life and the energy, so characteristic of the West.

The French Monarchy (1483-1789), by A. J. GRANT. 2 volumes, pp. 311, 314. (Cambridge Historical Series.) The Macmillan Co., New York, 1900. Price, \$2.25.

The writer's story of the growth of the French Monarchy in these pages is concisely told in an interesting way. His pages are not encumbered by references, although there is abundant evidence that the writer has his authorities well in hand. Indexes, abstracts, maps, and bibliography are all that the student could desire, and the series of histories of modern European countries from about the end of the fifteenth century to the present is well inaugurated in this book.

The Study of History in Schools. Report to the American Historical Association by the Committee of Seven, Andrew C. McLaughlin, Chairman. The Macmillan Co., New York, 1900. pp. 267. Price, 50 cents.

In the winter of 1896, a Committee of the American Historical Association was appointed to consider the subject of history in secondary schools, and draw up a scheme of college entrance requirements. This book is their report with a brief bibliography appended. The authors have taken a broad view of their subject, and discuss its value, continuity, the mode of treating different blocks or periods, sources, methods, present conditions, history in gymnasias and lycées, in English and Canadian secondary schools, with an appendix on maps and atlases. It is a work indispensable for every American teacher, and should be in the hands of every serious student of the subject.

The Working Constitution of the United Kingdom, by LEONARD COURTNEY. The Macmillan Co., New York, 1901. pp. 383. Price, \$2.00.

This valuable work treats in part, first quite exhaustively of Parliament in nineteen chapters; then of institutions subordinate to it; and thirdly its relations to the empire and to foreign powers. It is both a timely and solid work. The chapters on Scotland, Ireland, the colonies, and foreign relations will have a special interest at the present time.

The Political Economy of Humanism, by HENRY WOOD. Lee and Shepard, Boston, 1901. pp. 319. Price, \$1.25.

This seems a somewhat novel departure for this apostle of what to many seems mysticism, but seems to be a careful and serious discussion of the vital problems of supply and demand, capital, labor, socialism, centralization, tariff, corporations, the evolution of the railroad, industrial education, the social experiments in Australasia, etc.

The Influence of Beaumont and Fletcher on Shakspeare, by ASHLEY H. THORNDIKE, Worcester, Mass., 1901. pp. 187. Price, \$1.50.

The author's incentive to this study he ascribes to Professor Barrett Wendell's lectures, while his hypothesis concerning the great influence of Beaumont and Fletcher is all his own. He treat first rather fully of chronology and stage history; then that of Shakspeare's romances; the discussions of Henry the VIII; then Beaumont and Fletcher and their influence. Six of their romances, published before the end of 1611, constitute a new and distinct type of drama which seems reflected in Cymbeline, Winter's Tale, and Tempest, which are different from the rest of Shakspeare's plays. The chief conclusions

are, first that Shakspeare's change from tragedy to romance is to be accounted for by the contemporaneous production of the Beaumont-Fletcher romances, and secondly that these latter definitely influenced the above three plays of Shakspeare.

The Women of the Renaissance: A Study of Feminism, by R. DE MAULDE LA CLAVIÈRE. Translated by George Herbert Ely. G. Putnam's Sons, New York, 1901. pp. 510. Price, \$2.50.

The merit of this work is to some extent stylistic. It presupposes the masculinism of Anglo-Saxon and the feminism of Latin countries, whence the feministic movement sprung in protests against war, force, and in the increased materialism of religion and the hollowness of learning. Love and faith are the methods of women. The first part characterizes in successive chapters marriage, the married woman, children, education of girls, the husband, and the various ways of slipping his yoke. The second describes a philosophy of life, Platonism, mission of beauty, the embroidery of life, intellectual resources and conversation. The third book describes the political, moral, intellectual, and religious influences of woman. It is a very readable and modern work. Though not profound, it is a distinct contribution to the rapidly growing modern interest in the topics which it treats.

A Literary History of America, by BARRETT WENDELL. Charles Scribner's Sons, New York, 1900. pp. 574. Price, \$3.00.

This large volume begins with the year 1600 with books on the 17th, 18th, and 19th centuries, while book 4 treats of literature in the Middle States from 1798-1857; book 5 of the renaissance in New England, mostly devoted to individuals; and the last book entitled "the rest of the story" is on New York since 1857, Walt Whitman, literature in the South and West to the present time.

A History of Chinese Literature, by HERBERT A. GILES. D. Appleton and Co., New York, 1901. pp. 448.

This, we are told, is the first attempt made in any language, including Chinese, to produce a history of Chinese literature. Native scholars, with their endless critiques and explanations, have realized the impossibility of giving a general survey. Although the author intimates that his work would not fare well in Chinese, he thinks it may serve as an introduction to the English reader. Hence he undertakes a sketch, beginning with the feudal period 600 B. C. and ending with the present, in eight books. His work is made up very largely of brief quotations and many biographies, and is certainly of much interest.

The Classical Heritage of the Middle Ages, by HENRY OSBORN TAYLOR. Columbia University Press, New York, 1901. The Macmillan Co., Agents. pp. 400. Price, \$1.75.

This volume treats coucisely of the passing of antique man; pagan decadence; antique culture; christianized paganism; ideals of knowledge, beauty and love; abandonment of pagan principles in a Christian life; and Christian prose, poetry, and art. The book is of value and interest not only to educators but to students of the history of philosophy.

The School Speaker and Reader. Edited by William DeWitt Hyde. Ginn and Co., Boston, 1900. pp. 474.

This is dedicated to the author's son, George Palmer Hyde, "whose recurrent clamor for a piece to speak taught me what to put in, and whose scornful rejection of the babyish or dry, taught me what to leave out." The author thus intimates that he has gone to the true original source and asked boyhood itself what to use. We cannot

resist the conviction, however, that some of the pieces would hardly stand the test of this oracle, despite the high general excellence of the book.

A Text-Book of Geology, by ALBERT PERRY BRIGHAM. Twentieth Century Text-Books. D. Appleton and Co., New York, 1901. pp. 477.

This volume is especially intended for secondary schools, and avoids excessive technicalities, but the writer has wisely not thought it necessary to write down to students of this age. Unsolved problems are stated to show the vast field beyond. A little work in dynamic geology is first treated, beginning with the very accessible phenomena of winds and weathering, then comes the structural, and in the third part historical geology, with a separate treatment of the periods of the paleozoic era. The book contains 294 cuts.

The Romance of the Earth, by A. W. BICKERTON. The Macmillan Co., New York, 1900. pp. 181. Price, 80 cents.

The title of this book does not imply that facts are either ignored or distorted. The writer's imagination refuses to soar where there is no path. There are many cuts, some imaginary landscapes, and fancy is on the whole very judiciously used to stimulate youthful interest. Few youth or adults will dip into this book without a strong impulse to read it to the end.

Science Primers. American Book Co., New York, 1900. Price 35 cents. *History of Philosophy*, by THOMAS HUNTER. pp. 128.

It seems almost triviality to attempt a characterization of ancient, mediæval, and modern philosophy down to Spencer and Hartmann with conclusions and vocabulary in 125 tiny pages, and it passes our comprehension what possible service such a book can do. Kant, Schelling, and Fichte are treated in about two pages each, and this includes both the lives and doctrine.

The Common Sense of Commercial Arithmetic, by GEORGE HALL. The Macmillan Co., New York, 1901. pp. 187. Price, 60 cents.

This very concise work treats of percentage, profit and loss, insurance, trade discount, commission, stocks and bonds, interest, banks, exchange, partial payments, and averages. The author limits himself for the most part to small numbers, and is content to bring out underlying principles.

Schiller's Wallenstein, edited by Max Winkler. The Macmillan Co., New York, 1901. pp. 446. Price, 60 cents.

This is an attractive volume with clear type, judicious and copious notes, a brief bibliography on the subject of Wallenstein with a map to illustrate this sphere of his activity, and 130 pages of interesting introductory matter.

Chaucer. Edited by Mark H. Liddell. The Macmillan Co., New York, 1901. pp. 221. Price, 60 cents.

After 121 pages of valuable introductory matter, we have *The Prologue to the Canterbury Tales*, *The Knight's Tale*, *The Nonnes Presettes Tale*, with 40 pages of notes, and 35 devoted to a glossary. The type is good, and the volume compact and tasteful.

Demosthenes on the Crown, by WILLIAM WATSON GOODWIN. The Macmillan Co., New York, 1901. pp. 368. Price, \$3.75.

To aid in the full appreciation of this masterpiece, the author has given a comprehensive historical sketch with much prominence to the

negotiations leading to the Peace of Philocrates. The author thinks the time for neutrality on the question of the patriotism of Demosthenes is passed, and that he always had chiefly in heart and mind the desire to uphold the best traditions. The seven essays appended, constituting nearly half the book, will be read with interest by every scholar interested.

Heath's Home and School Classics. D. C. Heath and Co., Boston, 1901. Price, 10 cents.

A Book of Nursery Rhymes. Parts 1 and 2. Arranged by Charles Welsh. pp. 167.

The Temple Primers. The Macmillan Co., New York, 1900. Price, 40 cents.

Greek History. Translated from the German of Heinrich Swoboda, by LIONEL D. BARNETT. pp. 168.

The Child: His Nature and Nurture, by W. B. DRUMMOND. pp. 146.

Memory Training, by WILLIAM L. EVANS. A. S. Barnes & Co., New York, 1889. pp. 275.

The Teaching of Physiology, by WILLIAM TOWNSEND PORTER. pp. 16. Printed in the special number of the Philadelphia Medical Journal on Medical Education, Sept. 1, 1900.

The literary character of this series seems well maintained in these booklets.

Macmillan's Pocket English Classics. The Macmillan Co., New York. Price, 25 cents each.

Selections from the Prose Tales of Edgar Allan Poe. 1901, pp. 343.

This is perhaps the most attractive volume of this entire series, and contains besides an excellent sketch of Poe's life and a brief literary appreciation, eleven of his most important works.

Sesame and Lilies and the King of the Golden River, by JOHN RUSKIN. 1900, pp. 230.

Mr. Herbert Bates writes an interesting introduction of forty-eight pages, suggesting eighteen topics of composition based on Ruskin's works for high school pupils, and containing a list of Ruskin's writings in chronological order.

Selections from the Southern Poets. Selected and edited by William Lander Weber. 1901, pp. 221.

Twenty-five poets are briefly characterized with extracts from their works.

The Child Life Primer, by ETTA A. BLAISDELL and MARY F. BLAISDELL. The Macmillan Co., New York, 1901. pp. 95. Price, 25 cents.

All the pictures are colored and of child life; the sentences are short and conversational, with an average number of three new words in each lesson; and there is an unusual amount of reading matter.

LEHMANN, RUDOLF: *Erziehung und Erzieher*, Berlin, Weidmannsche Buchhandlung, 1901. pp. 344.

The man who gave as a reason for his pessimism the fact that he had a friend who was an optimist certainly presented an extenuating circumstance. The author of this book, an Oberlehrer in a Berlin Gymnasium, will be accused by some as being pessimistic, but he also has an excuse in the prevailing optimism of German educational writers, and his book will be all the more prized by American readers

because of his critical judgment and description of the dark as well as the bright side of German education. "In spite of all the tinkering and improvement in details, our German education," he says, "especially the German school, is behind the times and below the level of national development. It is lacking in that great unifying aspect which should characterize the culture of a great and united people. There is lacking a vital connection between education and life, between the school and the home." He clearly presents the two-fold aim of education, the individual and the social, and notes the natural conflict between the claims of the individual and of society, and then proceeds to discuss in a somewhat popular way, such topics as heredity and education; educational aims and ideals; the factors in education—the home and the school; the teacher; present condition of education; pedagogy as a science; the social aspects of education; educational principles, and the like. The matters treated are rather commonplace in education but of fundamental importance, and Herr Lehmann has made them vital and human by discussing them frankly from the point of view of one who daily meets the practical problems involved. While his style is sometimes pungent, still, his treatment is, in general, moderate, fair and judicial. Among the specially interesting passages are to be noted what he says about the character and personality of German teachers, authority as an essential qualification of the teacher, his suggestions in regard to home education, and in regard to ethical instruction of the young, as well as the presentation of educational questions in general. To those who desire an interesting inside view of German secondary education, together with the pedagogical opinions of an experienced German teacher, this book is to be commended.

W. H. B

Talks on Civics, by HENRY HOLT. The Macmillan Co., New York, 1901. pp. 493. Price, \$1.25.

The author writes in the hope of developing "in young people the character of mind which is proof against political quackery, especially the quackery that proposes immediate cures by legislation from abiding ills, resulting from human weakness and ignorance. Since the Civil War, America has been cursed by such proposals probably more than any other country ever was." The first book, on the protection of rights, discusses the right of life, liberty, happiness, property, national monopolies, rights under contract, etc. The second, on the promotion of conveniences, considers money, public works, recreation, defective classes education, sphere of government, and cities. The third book, on taxation, considers direct, indirect, and inquisitorial taxes, varieties of realty-taxes, rental value taxation, franchise taxation, and double taxation. The book is in the form of a dialogue between teacher and pupil, and is attractive, sprightly, well indexed, and opportune.

Aus Schule, Unterricht und Erziehung, von ADOLF MATTHIAS. C. H. Beck, München, 1901. pp. 476.

This is a collection of miscellaneous essays reprinted from various German journals. Those of special interest are children's individuality and their faults; German reading in the upper classes of the gymnasium; and on humanistic culture in "real" schools.

National Life from the Standpoint of Science. An Address delivered at Newcastle, November 19, 1900, by KARL PEARSON. A. and C. Black, London, 1901. pp. 62.

This interesting address by the well known mathematician and philosopher of science, advocates the scientific view of a nation as an

organized whole, kept up to the highest pitch of efficiency by ensuring that its members are recruited from better stocks, by war with lower and trade struggles with equal nations.

Domestic Service, by LUCY MAYNARD SALMON. The Macmillan Co., New York, 1901. pp. 338. Price, \$2.00.

Domestic service has been called the great American question. The author discusses its history from the beginning with the colonial period; the remedies for its defects, including specialization in household employments; profit sharing and education in household affairs; with a supplementary chapter on domestic service in Europe. It is a comprehensive and able treatment of its theme, which should be read and pondered by every thoughtful housekeeper.

Constructive Form Work. An Introduction to Geometry for Grammar Grades, by WILLIAM N. HAILMANN. C. C. Birchard and Co., Boston, Mass., 1901. pp. 60.

The writer here presents rudimentary constructive geometry for children between ten and fourteen, based on his long experience, designed to cultivate clear geometrical notions; healthy, æsthetic feeling; power of visualization and skill in construction, in order thus to stimulate vital interest in geometry. It is an interesting and, in American schools, a new departure.

William Shakespeare, Poet, Dramatist, and Man, by HAMILTON WRIGHT MABIE. The Macmillan Co., New York, 1901. pp. 421.

The author here gives us the result of a prolonged literary study of this great spokesman of one of the great races of the world. He treats Shakespeare's life, the stage, and the chief plays in what is thought to be chronological order. It is illustrated by scores of cuts and is a model of the bookmaker's art. The author has won general recognition as probably the best and soundest of American literary critics, and we hope will leave a school after him. He has rare talent of appreciation, and steadfastly through his career has illustrated the plain but the often forgotten fact, that the power to enter into the spirit of an author sympathetically is far higher than negative criticism. Mr. Mabie's opinion upon the value of literary productions within his wide range now carries greater weight in this country than that of any other man, and this crowning effort of his talent not only brings together the results of the greatest and best Shakespeare studies in a convenient and well unified form, but teaches us to see new and larger beauties in Shakespeare, and to connect the work in a more vital way with the man. Mr. Mabie has just received the important appointment of Lecturer in Literature at the Johns Hopkins University.

An Introduction to the Industrial and Social History of England, by EDWARD P. CHEYNEY. The Macmillan Co., New York, 1901. pp. 317. Price, \$1.40.

This is a text book for high schools and colleges, but will interest and profit any adult and intelligent mind. It treats of rural and town life and organization, mediæval trade, black death, industrial revolution, voluntary association, government control, break of the mediæval system, with bibliography subjoined for each chapter, and with a score or two of interesting illustrations.

NOTE.

Besides his investigations in the history of education and child study, Prof. Earl Barnes has done a large amount of lecturing in London and vicinity during the last year, having given altogether some 200 lectures before various student and teacher organizations, in University extension courses, and the like. The scope of this work may be seen from the topics for two of these courses which are as follows: on the History of Education, at Gresham College, under the auspices of the London Society for the Extension of University Teaching, 4 lectures,—the United States; Theorists of the 19th Century—Pestalozzi, Froebel, Herbert Spencer, G. Stanley Hall, and the natural history group students; Expansion of Europe; Control of Education by Women; Our Present Problems. On child study, at Battersea Polytechnic Institute, under the auspices of the same society, 10 lectures,—The Physically Defective Child; the Seeing and Hearing Child; the Observing Child; the Imitative Child; the Imagining child; the Remembering Child; the Criminal Child; the Punished Child; the Inquisitive Child; Suggestions for Further Study. In the London Technical Education Gazette, March, 1901, is reported an interesting address by Prof. Barnes on Nature Teaching for Children, delivered before the Conference of Science Teachers. His lectures have not only aroused the interest of English teachers, but are apparently bearing fruit in the modification of education in the London schools.

These lectures by Prof. Barnes form one among several indications of educational progress in England at the present time. Among others may be noted the fact that the new English code for elementary schools allows history a fair place in the course of study, and a memorandum on the Teaching of History (P. S. King & Son, Westminster, 1901, price, three-pence) has been prepared for the London School Board, by Prof. Withers of Owen's College, Manchester. Prof. Withers, we understand, is the first man in England to hold a full professorship of education with his work counting toward the Bachelor's Degree. The enrichment and humanizing of elementary education and the regard for the teaching of genetic psychology in elementary instruction are likely to bring about a marked reform in the work of the London schools.